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DISEASES OF THE SKIN

LIGHT AND X-RAY TREATMENT  
OF SKIN DISEASES

*(Modern Methods of Treatment Series)*

By SIR MALCOLM MORRIS, K.C.V.O., and  
S. ERNEST DORE, M.D. (Cantab.), M.R.C.P.

With 12 Plates. 5s.

# Diseases of the Skin

An Outline of the Principles and Practice  
of Dermatology

BY

*e*

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## NEW AND ENLARGED EDITION

REVISED BY THE AUTHOR, WITH THE ASSISTANCE OF  
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THE SKIN DEPARTMENT OF THE HAMPSTEAD GENERAL  
HOSPITAL AND TO THE SKIN DEPARTMENT OF THE  
EVELINA HOSPITAL FOR SICK CHILDREN, ASSISTANT IN  
THE SKIN DEPARTMENT OF THE MIDDLESEX HOSPITAL

*With 10 Coloured and 47 Black-and-White Plates, and Illustrations  
in the Text*

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## PREFACE TO THE FOURTH EDITION

IN the present edition the numerous and not inconsiderable advances made in Dermatology since the last edition was published, in 1903, have been duly noted. The author has been anxious not to allow what was designed to be a Manual to expand into a Treatise, but in spite of efforts made to keep the volume within the smallest possible limits, it has been necessary to add to it some forty-eight pages. A number of new Plates have also been included, among them eight in colours, and the *format* of the book has been slightly altered with the view of presenting to the eye a more easily legible page. As before, care has been taken that the Index shall enable the practitioner to see at a glance the main lines of treatment available in any given disease.

M. M.

8, HARLEY STREET, W.  
*October, 1908.*





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# DISEASES OF THE SKIN

## CHAPTER I

### PATHOLOGY OF THE SKIN

THE skin may be the seat of pathological processes similar in nature to those seen in other tissues and organs of the body, but modified to a greater or less degree by its position and anatomical structure. It may present congenital anomalies, the result of errors of development or intra-uterine disease, such as xerodermia, nævi, moles, albinism, etc. Owing to its situation, it is particularly exposed to the injurious influences of heat and cold, which directly affect the circulation; of light, which in certain circumstances has an almost caustic action; of the friction or pressure of clothes or other substances in contact with the surface of the body; of the manifold sources of irritation furnished by fungi and other parasitic organisms, animal and vegetable; and of traumatisms of various kinds. The skin may further be involved in processes which begin in the deeper tissues; it may be stretched and broken by the expansion of growths or the collection of fluid, and bound down by adhesions to the underlying parts.

Injuries to the skin have a special tendency to become complicated by infective processes, owing to the presence of pyogenic and other organisms on the surface of the healthy skin, in the sebaceous and other glands.

Anomalies of secretion play a large part in the

pathology of the skin. Retention of secretion, caused by mechanical obstruction or nervous influence, is frequently the starting-point of inflammatory processes. Excessive or diminished secretion is often dependent on abnormal states of the nerve centres or peripheral nerves. Profuse sweating may be the result of nerve exhaustion, or of the presence in the blood of toxic matters calling for elimination. An excessive secretion of sebum is often the starting-point of the inflammatory process in eczema seborrhœicum.

Like all other tissues, the skin is liable to inflammation, and the process is essentially the same as in other organs. The classical signs of inflammation, as given by Celsus—redness, swelling, heat, and pain—are particularly manifest in the skin. A characteristic feature of inflammation of the skin, however, is that the disorder of sensation generally expresses itself in the form of *itching* rather than of pain. The general definition of inflammation given by Burdon-Sanderson<sup>1</sup>—"the succession of changes which occurs in a living tissue when it is injured, provided that the injury is not of such a degree as at once to destroy its structure and vitality"—applies to the skin as to other tissues. The essential part of the process is increased diapedesis of white corpuscles, with escape of liquid exudation from capillaries and small veins and accumulation of these bodies, causing obstruction in the lymphatics. The higher degrees of inflammation are marked by stasis in the capillaries, veins, and small arteries; if this condition persists a certain time it induces necrosis. If the necrosed part liquefies, the leucocytes which have left the channels of the affected vessels find their way in large numbers into the necrotic liquefied tissue and become pus cells, the result being the formation of an abscess. The process by which leucocytes are attracted or repelled by irri-

<sup>1</sup> Holmes's "System of Surgery."



tant materials, whether these be products of micro-organisms or of any other kind, is termed "chemiotaxis," and the power which the leucocytes display of engulfing, and in some cases destroying, foreign bodies, such as bacteria, is termed "phagocytosis." According to recent investigations by Leishmann, Sir A. Wright, and Douglas, this phagocytic activity depends upon the presence in the serum of certain substances which affect bacteria in such a way as to enable them to be taken up by the leucocytes. To these substances Sir A. Wright gave the name of *opsonins*.

The first step in recovery from inflammation is the cessation of stasis followed by restoration of the blood circulation. Before stasis disappears, however, hæmoglobin, or blood-corpuscles, frequently escape from a capillary into the surrounding tissue, with the result that pigmentation of a more or less permanent character is left behind. According to Virchow, the pigment is always derived from the blood, and is at first held in solution in the plasma which bathes the tissues. According to Ehrmann, the pigment is derived from certain special mesoblastic cells, to which he gives the name of *melanoblasts*. The majority of observers agree that melanin, which can be distinguished from hæmatogenous pigments by morphological and chemical tests, has its origin in the blood, the pigment-bearing cells or chromatophores being variously regarded as connective-tissue cells (Unna, Rölliker), leucocytes (Schmidt), or protoplasmic processes from epithelial cells (Kromayer). Other writers (Kaposi, Delépine) hold that melanin is not a degeneration product of hæmoglobin, but a separation or secretion product of the protoplasm of pigmented cells.<sup>1</sup>

Slighter degrees of the inflammatory process, if long persistent, result in hyperplasia of the fixed connective

<sup>1</sup> MacLeod: "Handbook of the Pathology of the Skin," p. 305.

tissue cells and in the presence of plasma cells. The latter, which are variously regarded as pathologically altered connective-tissue cells (Unna), as mononuclear leucocytes or lymphocytes (Marschalko, Jadassohn), or endothelial cells (Whitfield),<sup>1</sup> occur in the infective granulomata and other pathological conditions as well as in simple chronic inflammation.

All degrees of dermatitis may be set up by the application to the skin of irritants, such as mustard oil, in solutions of varying strength. The slightest irritation causes temporary hyperæmia, in which it would be impossible, on simple inspection, to say that exudation had taken place. The microscope, however, shows the process to be really inflammatory. By using progressively stronger irritants, papules, vesicles, bullæ, and other lesions may be produced. On removing the irritant, recovery takes place with a greater or less amount of desquamation. Microscopic examination of an inflammatory papule shows that the cells of the rete are œdematous and proliferated (acanthosis). The cells of the horny layer are moist and imperfectly cornified, and retain their nuclei (parakeratosis). The corium is infiltrated with small round cells, which are most thickly clustered around the separate vascular areas. To these changes in the rete and corium are due the most marked appearances of the inflamed cutis, viz. the swelling, elongation, and flattening of the papillæ.

A further degree of irritation will transform the papule into a vesicle; the latter lesion is due to separation of the layers of the serrated cells of the rete and accumulation of clear fluid containing leucocytes in the clefts (spongiosis). In the process of separation some of the

<sup>1</sup> "On the Plasma-Cell, the 'Small Round Cell,' and the Cells of Chronic Inflammation in General: A Survey of Recent Literature, with the Results of Some Further Observation and Experiment."—*Brit. Journ. Derm.*, January and February, 1904.

rete cells are drawn out into fusiform or filiform figures, forming a meshwork in the vesicle. The involution of a vesicle may begin by absorption of the fluid without breach of the superficial epidermic layer, or the vesicle may burst, leaving a red surface secreting serous fluid, and formed by the papillary layer of the corium, which is generally covered by the deepest layer of the epidermis; this is termed *excoriation*. In more severe cases, not only the whole of the epidermis, but part of the corium, is destroyed; this is *ulceration*. If the irritant action is maintained, the contents of the vesicle are more and more charged with corpuscles, becoming opaque and afterwards puriform; thus the vesicle is transformed into a pustule.

Umbilication of vesicles or pustules takes place in several ways. Thus the fluid may not fully distend the cleft in which it lies, and the network of elongated rete cells may cause a dimpling (primary umbilication of Auspitz and Von Basch), or commencing absorption may cause a similar flaccidity of the sac; or again, a scab-covered umbilication is often seen after rupture. That pus can be absorbed without being discharged on a surface is proved by the frequent absorption of a collection of pus in the anterior chamber of the eye without perforation of the cornea. Desquamation in superficial dermatitis is analogous to excessive mucous secretion in catarrhal affections of mucous membranes. This is the course of events in a typical case of traumatic dermatitis; but an inflammatory process may be set up in the skin in various ways. Thus, the retention of secretion in a sebaceous gland may induce perifolliculitis which the presence of micrococci may cause to become pustular. Slight injuries, such as those inflicted by the itch mite or by lice, may also become infected by pyogenic organisms. More intense infective processes are seen in the case of erysipelas.

Abnormal vascular or nervous conditions in the skin render it more vulnerable. The lower limbs show a marked proclivity to inflammation of all degrees of severity when they are the seat of varicose veins, or when they are paralysed owing to affections of peripheral nerves or the spinal cord. Circulatory inadequacy may be due to abnormal conditions of the heart or lungs. There is a special vulnerability of the skin, as well as of the other tissues, which is associated with tuberculosis and also with diabetes. This vulnerability of tissue manifests itself in slowness of repair after injury, and in a marked tendency to become infected by pyogenic cocci and tubercle bacilli.

The influence of disordered nerve action in producing inflammation of the skin is displayed in such conditions as herpes and urticaria. Other examples of lesions dependent on nervous disorder are seen in acute bed-sore, perforating ulcer, glossy skin, etc., where severe lesions are directly traceable to inflammatory conditions of the peripheral nerve trunks or their origin in the spinal cord.

The results of inflammation vary according to the severity of the process and the structural peculiarities of the part affected. *Pigmentation* is a marked feature in syphilitic lesions, and in all lesions on the leg when the veins are varicose, and when there is therefore a tendency to disintegration of red blood-corpuscles.

*Thickening* of the epidermis is a frequent result of inflammation, and the increased rapidity of proliferation of epidermal cells leads, in eczema and certain other conditions, to the formation of visible scales and, when the nails are affected, to pitting or thickening.

*Degeneration* of the skin takes place naturally in old age, the corium becoming thinner, and the skin darker owing to increase of pigment. The elastic tissue is altered in its anatomical appearance and loses its

function. A peculiar degeneration of the elastic tissue is associated with the disease known as "xanthoma of Balzer." Degeneration of morbid products takes place in xanthoma when the inflammatory cells become loaded with fat, and in the peculiar colloid degeneration of the skin which somewhat resembles xanthoma, but is due to changes in the walls of the blood-vessels.

The view that cancer and sarcoma are infective diseases is held by some pathologists; but the whole subject of the etiology of these conditions is still shrouded in obscurity. Papillomatous growths (warts, horns, etc.) may result from constant irritation by irritating agents, such as strong lotions, but more commonly from prolonged irritation by micro-organisms. From the epidermis and glands other epithelial growths, such as adenoma and epithelioma (in what may be called the dermatological sense of the term), may arise. From the corium may develop such growths as fibroma, myxoma, myoma, etc., as well as those of malignant type, such as sarcomata and endotheliomata.

Parasitic affections are common. Suppuration is the result of microbic infection, and parasites of various kinds are present in ringworm, favus, itch, etc. The list of such affections will no doubt be extended by further research.

The importance of the indirect effects of the punctures made by head lice has already been referred to; the body louse and the pediculis pubis are the most common among other external parasites. In some persons the bites of bed-bugs are followed by severe urticaria. The connection between mosquitoes and the *Filaria sanguinis hominis* has been established by Sir Patrick Manson. In tropical America and on the west coast of Africa a parasite resembling the common flea—the chigoe or jigger (*Rhyncoprion penetrans*)—causes an affection of the skin which, if not properly treated,

may go on to inflammation and more or less extensive gangrene. The bot-fly (*Æstrus*), even in Great Britain, occasionally deposits its eggs in the human skin, thus setting up an acute boil-like affection. And similar parasites may possibly give rise to the form of rash known as "creeping." The *Cysticercus cellulosæ* has been found in the subcutaneous tissue, and the echinococcus, the liver fluke, and *Bilharzia hæmatobia* have all been observed at one time or another in isolated cases. Besides the common mites, *Acarus scabiei* and *Acarus folliculorum*, the harvest bug (*Leptus autumnalis*) occasionally gives rise to inflammatory papules by boring into the skin. The commoner of these parasites will be more fully dealt with in connection with the lesions which they cause.

In addition to the animal parasites, to which reference has just been made, certain bodies found in molluscum contagiosum, Paget's disease of the nipple, in carcinoma, and even in sarcoma, have been held by different observers to be examples of similar modes of parasitic infection.

Of the many authors who have carefully worked at the subject, not one has been able to bring forward convincing evidence as to the parasitic character of the bodies in question, and it is now held that they are the result of exceptional pathological changes within the cells themselves.

### MORBID ANATOMY

Pathological changes in the skin are for the most part appreciable by the sight or the touch. Hence the gross anatomy of skin lesions constitutes the most important part of symptomatology, and must be firmly grasped by everyone who intends to hold himself responsible for the recognition of the infective fevers and of all diseases that affect the skin.



The complexity of the normal anatomy of the skin results in a corresponding complexity of morbid forms, or, as they are termed, *lesions* of the skin. These elementary lesions are primary when they result from a pathological process before or at its fullest evolution, and secondary when they result from the more or less complete subsidence of that process. Thus each vesicle in a case of herpes zoster is a primary lesion, and the scars which may remain in the place of the same vesicles are secondary lesions. It should be noted that identical lesions may be at one time primary, at another secondary.

Here it will be convenient to give a list of elementary lesions, with definitions of the terms used.

**Primary lesions.**—A *macule* is a portion of the skin altered in colour and having a definite outline without marked elevation.

Some macules are distinctly inflammatory in nature, others are non-inflammatory. The former, in the slightest degree of development, are areas of hyperæmia, which disappear on pressure or at death. Such are the rose spots of enteric fever in their earliest stage; later they may become papular. Some macules, such as those of syphilitic roseola, leave a brown stain when the intravascular blood is removed by pressure or stretching. Non-inflammatory macules are due either to overdevelopment of blood-vessels, as seen in capillary nævi, or to pigmentary changes.

The passage of blood, or of the colouring matter of the blood, into limited areas of skin constitutes another variety of macule. These are termed *vibices* when linear; *ecchymoses*, or *petechiæ*, when punctate. There may be excess or deficiency of the normal pigment of the skin (whether that of the rete or of the corium) over a limited area. Freckles are an example of excess (hyperchromasia); leucodermic patches, of deficiency (achromasia).

A *papule* is a solid elevation of the skin not larger than a pea. Papules may be produced by inflammation, as in papular eczema. Inflammatory papules may be pointed, rounded, or depressed in the centre either from their having formed round a sweat-duct or as the result of a secondary change, as in molluscum contagiosum. A papule may be non-inflammatory, such as those which result (1) from excessive cornification round the mouths of hair follicles, or (2) from retained secretion, or (3), when pathological in degree or persistence, the elevation of a hair follicle by an erector muscle may constitute a papule, as in severe goose-skin.

*Tubercle* is the term applied to a solid elevation of the skin when larger than a pea. This use of the term must be sharply distinguished from its specific pathological sense—*i.e.* a nodule caused by cell-infiltration due to the action of tubercle bacilli on the tissues.

*Wheals* are a special variety of papule or tubercle. They are met with in urticaria, and are marked by a round, or oval, or irregular shape, a pale centre and a red periphery. They usually appear suddenly and disappear rapidly, and, except in urticaria pigmentosa, without leaving a trace; they are generally accompanied by intense itching. They are the result of a circumscribed œdema of the skin due to angio-neurotic irritation.

*Tumours* are very large, solid elevations of the skin.

*Vesicles* are elevations of the skin not larger than a pea and containing more or less clear liquid. They are superficial (as in eczema, etc.), or deep (as in herpes zoster, etc.), according as the liquid collects between the layers of the epidermis or in the corium. Inflammatory vesicles are usually developed from papules, and may pass on to a pustular stage or subside, leaving secondary lesions. Non-inflammatory vesicles are due to the passive accumulation of fluid between the layers of the epidermis.

*Blebs*, or bullæ, are elevations of the skin filled with

liquid and larger in size than peas. They occur in pemphigus and other conditions.

*Pustules* are elevations of the skin containing pus. They always develop from vesicles, and are usually surrounded by a ring of inflammatory hyperæmia (areola).

**Secondary lesions.**—These are due to mechanical injuries, such as scratch-marks, or form in the course of the involution of primary lesions. In the second category we may recognise four chief processes: desquamation, hypertrophy (persistent infiltration), scar formation (atrophic infiltration), and pigmentation. Thus we have—

(1) *Scales*, or squamæ, resulting from the subsidence of macules or papules, or forming on a hyperæmic base. The process is termed desquamation.

(2) *Pigmentation* may remain after almost any primary lesion.

(3) *Excoriations* are left after the rupture of vesicles or pustules.

(4) *Ulcers* remain after the destruction by any inflammatory process of the whole thickness of the corium or deeper tissues.

(5) *Fissures* or rents (rhagades) are a variety of ulcers.

(6) *Scabs* or *crustæ* result from the drying of liquid exudations on the surface of the skin. Thus they may be left after the cessation of hæmorrhage (blood scab), after the rupture of a vesicle (serum scab), or of a pustule (pus scab), or they may be formed of sebaceous matter, or be caused by a parasitic growth as in favus. Scabs may consist of a commingling of these various dried exudations.

(7) *Thickening* (hypertrophy) may result from the imperfect involution of inflammatory exudations, as *e.g.* chronic eczema, or elephantiasis.

(8) *Scars* are the result of the complete involution of an inflammatory infiltration which has been of

sufficient intensity to destroy part of the corium, and thus may remain after such a lesion as an ulcer.

### BACTERIOLOGY OF THE SKIN

Vegetable fungi play a most important part in the production or modification of skin diseases, and on the recognition of the exact etiological factors in such cases must largely depend our success in treating these affections.

It has long been known that *tinea tonsurans*, *favus*, and *pityriasis versicolor* depend respectively on fungi which resemble each other in belonging to the group *Ascomycetes*, and in the possession of branched septate hyphæ, which form spores, or conidia, by successive separation of small oval bodies at the extremities of the branches. Since the methods of research have been improved by Pasteur, Koch, Sabouraud, and others, our knowledge of the relation of vegetable fungi to the production of disease has been immensely expanded. Koch's four postulates have been successfully applied to many of the micro-organisms affecting the skin, and it will be of advantage to recall here these postulates, which are as follows :—

1. The micro-organism must be found in the blood, lymph, or diseased tissue of the man or animal suffering from, or dead of, the disease.

2. Pure cultures of the micro-organism must be obtained in suitable artificial media outside the animal body, and a number of sub-cultures must be made from the original culture.

3. Part of a pure culture obtained in this way must reproduce the disease when introduced into the body of a healthy animal.

4. From the animal thus infected the same micro-organism must again be recovered.

The application of these rules has been of the

greatest service to pathologists. In some diseases, it is true, which are believed to be due to vegetable parasites, the third and fourth of these postulates have not yet been fulfilled. For instance, in leprosy immense numbers of peculiar bacilli are present in the lesions. Owing, however, to the fact that animals are but slightly, if at all, susceptible to the infection, it has hitherto been impossible to inoculate them with this disease. Nevertheless the causative relation between the parasite and the disease must be looked upon as settled.

Micrococci were first observed in pus by Ogston, and the part which they play in the causation of the suppurative process was soon fully established. The demonstration of this fact paved the way for the introduction by Lister of the antiseptic system which has revolutionised surgery.

The streptococcus of erysipelas is now generally believed to be identical with that of suppuration, the effects which it produces being modified by the fact of its being limited to the corium. The readiness with which a superficial erysipelas passes into a suppurating cellulitis affords confirmation from the clinical side of the view that both affections have a common cause. It has been shown that some chronic forms of lymphangitis are also caused by the *Streptococcus pyogenes*.

The great majority of suppurative processes in the skin are set up by staphylococci and streptococci. As a consequence of staphylococcic invasion of the hair follicles of the beard or other parts, sycosis is induced. Boils and carbuncles are also due to staphylococci. The follicular impetigo of Bockhart is another effect of the same cause. Impetigo contagiosa of Tilbury Fox, formerly thought to be caused by the staphylococcus, has been shown by Sabouraud to be streptococcal in origin, the primary vesicle giving a pure culture of streptococci in liquid media and the staphylococcal invasion

being secondary. The streptococcus also probably accounts for the circinate, bullous, chronic and tropical forms of impetigo, and for the allied diseases—pemphigus neonatorum and dermatitis exfoliativa neonatorum of Ritter. Streptococci have been found in ecthyma and in gangrenous and vacciniiform dermatitis of children, although other micro-organisms (such as *Bacillus pyocyaneus* and *Bacillus coli*) have also been described in association with these conditions.

Infection by pyococci is often secondary to some other affection. Thus in variolous pustules the *Streptococcus pyogenes* is found; but that organism is not the cause of smallpox, the specific virus of which still remains undetected. In the same way simple eczema often becomes complicated by suppuration due to the presence of pyogenic cocci. On the other hand, it is becoming increasingly recognised that many so-called pustular eczemas are staphylococcic or streptococcic infections from the first. The frequent complication of skin affections with processes set up by pyococci is of the greatest practical importance. Other micro-organisms of etiological importance in skin diseases are *Staphylococcus epidermidis albus* (Welch), *Staphylococcus cutis communis* (Sabouraud), and *Morococcus* (Unna). The exact pathological importance of this organism is still doubtful. It is found both in healthy and in diseased epidermis, and is thought by some observers to be a non-virulent form of *Staphylococcus pyogenes albus*. According to Sabouraud it is a causal or contributing factor in seborrhœic eczema.

The micro-bacillus of Sabouraud—also of Unna—the *Bacillus acnes* of Gilchrist, is regarded by the first of these observers as the cause of oily seborrhœa; of the common form of alopecia areata, which he considers to be an acute localised seborrhœa; and of the comedones of acne. The “bottle” bacillus (balloon or flask-shaped



bacillus) is believed by Sabouraud to be the cause of pityriasis of the scalp.

To what extent simple warts may be due to micro-organisms it is, in the present state of knowledge, impossible to say; but there is clinical evidence that they are contagious, and they have been inoculated experimentally.

Koch's discovery of the nature of tuberculosis shed a brilliant light on several affections of the skin which are now known to be of tuberculous nature. Lupus vulgaris, scrofuloderma, and the acute miliary ulcer which occurs in association with advanced tuberculous disease of the lungs or alimentary tract, are now known to be true tuberculous infections of the skin. The diseased tissue is built upon the tuberculous plan, contains the *Bacillus tuberculosis*, and produces tuberculosis in susceptible animals on inoculation. The *post-mortem* wart, which is not uncommon on the hands of dead-house porters and butchers, has been shown to be pathologically identical with lupus verrucosus, and to be due to the tubercle bacillus. Other forms of tuberculous lesion of the integument in which tubercle bacilli have not yet been demonstrated will be described under the head of Tuberculides. A recent addition to the diagnostic tests for tuberculosis is the ophthalmic reaction of Calmette. A few drops of .5 per cent. tuberculin placed in the eye of a tuberculous subject causes infection of the conjunctiva and caruncula after three hours, accompanied by epiphora and followed by a slight fibrous exudation, the maximum reaction being observed after two or three days. A similar test has been employed by Pirquet, who applies the tuberculin to the skin by scarification.

The bacillus of leprosy has already been referred to. It bears a close resemblance to that of tubercle, the chief differences being the greater tendency to an arrangement

in bundles and the comparatively larger number of leprosy as compared with tubercle bacilli in the skin. Cultures and inoculations of lepra bacilli also give negative results. With regard to syphilis, the *Spirochaeta pallida* or *Spironema pallidum* of Schaudinn and Hoffmann is now generally admitted to be the organism responsible for this disease. It is a delicate spirillum 6 to 16  $\mu$  in length and about  $\cdot 25 \mu$  in breadth, with 10 to 26 regular spirals and tapering extremities with a single flagellum. In congenital syphilis the spirochæte occurs in large numbers in the viscera and cutaneous lesions; it has also been found in the primary and nearly all the secondary and in tertiary lesions of acquired syphilis, and in anthropoid apes inoculated with the disease. It has to be distinguished from the *Spirochaeta refringens*, and a similar spirochæte has been described by Castellani in yaws. The serum diagnosis of syphilis by Wassermann's complement-fixation and other methods is still in an experimental stage. In another disease belonging to this group (glanders), a pathogenic organism, *Bacillus mallei*, has been found; it is of about the same size as the tubercle bacillus, is easily obtainable in pure culture, and has been inoculated with positive results into horses, sheep, guinea-pigs, rabbits, and mice. The fate which befell the Russian investigator, Helman, the discoverer of mallein, may be taken as a proof that the glanders virus is also inoculable in man. Experimental inoculation gives rise to a spreading ulcer with a hard base at the point of infection; numerous small ulcers next appear around it, and finally the infection is generalised, producing enlargement of glands, characteristic nodules in the viscera, and nodules and ulcers on the nasal septum. In all these lesions the specific bacilli are found.

Rhinoscleroma, a rare affection which attacks chiefly the upper lip and the nasal mucous membrane, is another



example of a disease caused by a micro-organism. The specific bacillus is found in the form of cocci, or short rods, surrounded by definite capsules, and closely resembles the pneumo-bacillus of Friedländer. Malignant pustule is another bacterial disease which may in the first instance attack the skin. In that case the disease remains local for a time sufficient to allow of its being removed by free excision.

Skin wounds may be infected by the bacillus of diphtheria; and, inasmuch as peripheral neuritis may follow such an infection, there is clinical as well as bacteriological evidence of the identity of the affection in the skin and in the throat.

Empysematous gangrene (malignant œdema) has been proved to be caused by a particular micro-organism. The bacilli, which are short and broad, bear some resemblance to those of anthrax; but they are motile, and will not grow with a free supply of oxygen. This bacillus has a wide distribution, its spores being found in the surface soil and in putrefying animal and vegetable matter.

Actinomyces has been found to flourish luxuriantly in the skin, though in most of the cases of cutaneous actinomycosis hitherto reported the disease appears to have involved the skin by spreading from underlying viscera.

Vandyke Carter, Kanthack, Crookshank, Boyce, Surveyor, Vincent, and others have found that the affection known as Madura foot, or mycetoma, is caused by fungi in many respects resembling that of actinomycosis.

One of the hyphomycetes (*Aspergillus niger*) is sometimes found growing on the superficial layers of the epidermis. The external meatus of the ear is the place where it is usually met with, but Delépine<sup>1</sup> has

<sup>1</sup> *Path. Soc. Trans.*, 1891.

reported a case in which the skin of the leg was the seat of the fungus. *Aspergillus niger*, as a rule, is merely a saprophyte; but in certain instances it takes on a pathogenic character, and may cause perforation of the tympanic membrane. D. Winfield<sup>1</sup> of Brooklyn has reported a case of "favus-like eruption of the oral mucous membrane caused by *Aspergillus nigrescens*."

A special form of dermatitis caused by blastomyces has been described by Hyde, Montgomery, Gilchrist, and Stokes.<sup>2</sup> Botryomycosis, the term applied by French observers to small fungating granulation-tissue tumours occurring in association with suppuration, is probably a chronic staphylococcic infection.

With regard to the acute specific fevers, there are obvious difficulties which stand in the way of any attempt to satisfy Koch's postulates. Cocci, or bacilli, are found in most cases, but no conclusive proof is yet forthcoming that they stand in a causal relation to the processes with which they are associated.

In addition to the pathogenic bacteria, many saprophytic organisms are found on the skin. The *Bacillus fœtidus* (Thin) is the cause of the disagreeable odour emitted by the feet of certain individuals, and in pure cultures it generates a similar stench. Bacilli are found in "blue" sweat (*B. pyocyaneus*), and one form of "red" sweat is due to the presence of micro-organisms.<sup>3</sup>

Of the large number of micro-organisms occurring in the skin, the pathological effects of only a few are known. In some cases, no doubt, the same organism has been described under different names, as pointed out by Cedercreutz. Many are purely saprophytic and

<sup>1</sup> *Journ. Cut. and Gen.-Urin. Dis.*, vol. xv., p. 13, January, 1897.

<sup>2</sup> *Journ. of Exp. Med.*, vol. iii. 1898.

<sup>3</sup> Balzer and Barthélemy: *Ann. de Derm. et de Syph.*, June, 1884.

remain so; on the other hand, the possibility of a saprophytic organism becoming pathogenic or of assuming different characters and properties under varying circumstances, as in the case of the *Staphylococcus epidermidis albus* and the *Staphylococcus pyogenes albus* (referred to above), or the "polymorphic coccus"<sup>1</sup> of Cedercreutz, has been suggested. Owing to the careful researches of Sabouraud, the nature of contagious impetigo and other pyogenic infections has been made clear, but the sphere of activity of his micro-bacillus and its symbiosis with other organisms, and the rôle played by the *Staphylococcus cutis communis* and the "bottle" bacillus, require further elucidation.

It may be noted that organisms grow more luxuriantly in parts such as the scalp, the axillæ, the groins, and other regions where they are protected from influences injurious to them, and where they find conditions, especially warmth and moisture, favourable to their growth. These regions are accordingly often the sites of origin of infective diseases of the skin.

The reader who wishes to study this subject in detail is referred to the list of organisms found in association with various diseases of the skin given by Galloway in his valuable article on Bacteria of the Skin in Allbutt's "System of Medicine," or to that in MacLeod's "Handbook of the Pathology of the Skin."

<sup>1</sup> "Investigations on a Polymorphic Coccus." Paris, 1901.

## CHAPTER II

### CLASSIFICATION

CLASSIFICATION is a good servant but a bad master, and the student must never allow himself to be beguiled into thinking that any system of pigeon-holing is an Ariadne's thread which will guide him safely through all the mazes of the pathology of the skin. There can be no finality in the classification of cutaneous affections till finality of knowledge of their causation, clinical phenomena, and pathological affinities has been reached. At present all attempts at classification must be provisional, shifting with the prevailing currents of scientific thought and liable to give way at any moment under the pressure of increasing knowledge. In these circumstances the best classification is not the most complete and most symmetrical, but that most likely to be practically useful for purposes of treatment, by grouping diseases according to their proved or probable etiological affinities.

The earliest attempt to classify diseases of the skin was made by Hieronymus Mercurialis in the first book on dermatology ever published.<sup>1</sup> His classification was purely regional, skin affections being divided into those of the head and those of other parts. This simple arrangement was followed a century and a half later by Daniel Turner,<sup>2</sup> and afterwards by Alibert (1806), who made two principal genera of cutaneous diseases,

<sup>1</sup> "De Morbis Cutaneis," 1572.

<sup>2</sup> "A Treatise of Diseases Incident to the Skin," 1712.

those of the head (which he called *teignes*), and those of the body (which he called *dartres*). The former he subdivided into five, the latter into seven species, each with several varieties based on differences in the appearance of the lesion. Thus a scaly eruption on the trunk was a *dartre squameuse*, one with crusts a *dartre crustacée*, each being still further qualified according to shape, moisture, or dryness, etc. Affections too impartial in their attacks on the skin to be confined within the limits of a particular region were grouped in somewhat haphazard fashion as *éphélides*, *syphilides*, *scrofulides*, *psorides*, *cancroïdes*, etc.

Scientific classification may be said to have begun with Plenck,<sup>1</sup> who took as the basis of his classification the predominant objective feature of the disease, including, however, the results of the evolution of the process as well as the primary lesions. He grouped affections of the skin under fourteen heads as follows: (1) Macules, (2) Pustules, (3) Vesicles, (4) Bullæ, (5) Papules, (6) Crusts, (7) Scales, (8) Callosities, (9) Excrescences, (10) Ulcers, (11) Wounds, (12) Cutaneous Insects, (13) Diseases of the Nails, (14) Diseases of the Hair. Willan somewhat modified Plenck's classification, grouping skin lesions in the following "orders": (1) Papules, (2) Scales, (3) Exanthemata, (4) Bullæ, (5) Pustules, (6) Vesicles, (7) Tubercles, (8) Macules. To these Willan's pupil, Bateman, added a ninth group, Dermal Excrescences.<sup>2</sup> Passing over Joseph Frank's (1821) absurd classification of skin diseases into acute and chronic, we come to Erasmus Wilson, who, as an anatomist, naturally looked for a basis of classification in anatomy. He grouped cutaneous affections according to the structure in which they took their origin, making four divisions: (1) Diseases of the Derma,

<sup>1</sup> "Doctrina de Morbis Cutaneis," Vienna, 1776.

<sup>2</sup> "Practical Synopsis of Cutaneous Diseases," London, 1815.

(2) Diseases of the Sudoriparous Glands, (3) Diseases of the Sebiparous Glands, and (4) Diseases of the Hair and Hair Follicles. Meanwhile, the French school, of which Bazin may be taken as the representative, attempted to classify skin diseases according to certain constitutional states of which they were supposed to be an expression. To make such a scheme anything like complete, however, it was first necessary to create diatheses to account for a large number of affections, which were accordingly put down to the credit of sundry mythical dyscrasiæ, "herpetic," "dartrous," etc. In 1845 Hebra published a scheme of classification based on the more solid ground of pathology. He divided affections of the skin into twelve classes corresponding to the structural changes in the tissues of the body generally, which formed the foundation of Rokitansky's classification of the results of pathological processes. Thus, according to Hebra, a disease of the skin falls under one or other of the following heads: (1) Hyperæmias, (2) Anæmias, (3) Anomalies of Secretion of Glands, (4) Exudations, (5) Hæmorrhages, (6) Hypertrophies, (7) Atrophies, (8) Neoplasms, (9) Pseudoplasms, (10) Ulcerations, (11) Neuroses, (12) Diseases caused by Parasites.

From what has been said it will be seen that the classification of the English school was mainly objective, that of the French school diathetic, and that of the Vienna school anatomico-pathological, in character. A classification according to processes was attempted by Auspitz, and after him by Bronson, but scientific though such a system undoubtedly is, in the existing state of our knowledge it is impossible to carry it out satisfactorily. At the present day Hebra's classification is generally adopted, with some slight modifications, by English writers.

In the present work no formal scheme of classification is propounded, but an attempt is made to group



the diseases described in accordance with the tendency of modern pathological research—that is to say, etiologically. The lines followed are mainly those traced out by Unna in his arrangement of subjects in the *Monatshefte für praktische Dermatologie*. Thus the affections in the production of which disorder of the nervous system may reasonably be held to be the leading factor, form one class; the eruptions due to artificial irritation, external or internal, a second; those caused by medicinal substances, a third. A large and composite group is made up of affections which, differing in every other respect, are linked together by the fact that they are the results of the action of parasites. These may give rise to constitutional infection, as well as local reaction, constituting a group of general inoculable diseases; or they may produce only local lesions, forming a group of local inoculable diseases. Diseases of which the etiology is at present obscure, or altogether unknown—such as eczema, psoriasis, pityriasis rubra, and new growths—are for the present necessarily left unclassified.

The progress of medical science lies almost entirely in the discovery of causes. As these become known, fresh groups of diseases will naturally be formed. The outline of a scheme here sketched must not be looked upon as a classification of skin diseases, but only as a provisional arrangement which has at least the advantage of bringing into strong relief the chief point to which treatment is to be directed. Thus, if it is known that an affection is of nervous origin, that fact of itself at once supplies the leading indication for treatment. If the lesions belong to the category of artificial eruptions or drug rashes, it follows naturally that in order to remove the effect we must suppress the cause. A disease belonging to the general inoculable group requires general as well as local treatment, while one

belonging to the local inoculable group can be dealt with by local measures alone.<sup>1</sup>

<sup>1</sup> For a fuller account of the various schemes of classification of diseases of the skin that have been proposed, the reader is referred to an address delivered by the author as president of the section of Dermatology at the annual meeting of the British Medical Association held at Montreal in the autumn of 1897, and published in the *British Medical Journal* of September 18th, 1897, p. 697 *et seq.*



## CHAPTER III

### PRINCIPLES OF DIAGNOSIS

THE diagnosis of any case of skin disease implies an adequate knowledge not only of the nature and evolution of the lesions by which it manifests itself, but of the process of which these are the result. When, in addition to this, the cause which is the origin of the pathological mechanism can be discovered, the diagnosis is complete. It is not enough to recognise that an eruption is papular, vesicular, or pustular; as a rule, the individual lesion by itself is no more an index of the disease which produced it than a single brick is of the building of which it forms a part. Each case must be studied in all its relations as a clinical entity, not as a mere illustration of a hypothetical type. Facts must be observed with an open mind and a resolute endeavour to see things as they are, and not to be misled by names. The object of the present chapter is not to enumerate all the points which differentiate one affection from another, but to set forth the principles of a diagnostic method which may enable the observer, if not to decide at once what the particular disease before him is, at least to say with greater or less probability what it is not.

*Examination of the patient.*—The first thing necessary is to make a thorough examination of the patient. This should always be done in clear daylight; in the dusk, colour, which is always a most valuable guide in the diagnosis of skin affections, becomes invisible;

and by artificial light it is so changed as to be misleading. All the lesions should be seen, and the ideal plan is to have the patient completely stripped; in the case of females, however, we must generally be content with inspecting the affected parts piecemeal. On no account should the practitioner ever allow himself to be betrayed into giving an opinion on the nature of a skin lesion which he has not had an opportunity of seeing. The examination should in the first instance be purely objective; no reliance should be placed on statements made by the patient, but all possible information should be got from the study of the lesions themselves. When this has been done, the patient's deposition may be taken, but it is most important that no questions of a leading nature should be put, and statements as to the history and course of the lesions must always be carefully checked by the results of objective examination. The interrogatory should be particularly directed to the following points:—What is the chief symptom complained of? How long have you had it? When, in what form, and where did the eruption first show itself? Does it come and go, or is it constant? What are the general features in the development of the lesions—has there been “weeping,” discharge of matter, etc.? In interpreting the patient's answers allowance must be made for inaccuracy of description and misuse of terms: thus even well-informed persons will include under the term “blister” not only vesicles and bullæ but wheals. The nationality of a patient, or the fact of his having resided in the tropics or other regions where certain diseases—such as leprosy, “spotted sickness,” etc.—are endemic, is often a most important link in the chain of evidence. Moreover, the occupation of the patient should always be noted. The other relevant points of the medical history should be ascertained in the ordinary way.

In studying an eruption, not only the shape, colour, and appearance of the lesions, but their place and mode of origin, their distribution, their arrangement in groups or otherwise, the pigmentation which they leave behind them, the presence or absence of induration in and around them, their individual and corporate life-history, the presence or absence of local rise of temperature or the other classical signs of inflammation, and the general symptoms, if any, by which their development is preceded, accompanied, or followed, must be taken into account.

Thus certain diseases almost invariably *begin* in particular parts, as, for example, psoriasis on the elbows and knees, and seborrhœic eczema on the scalp. In some affections, as in lichen, the elementary lesion remains unchanged and unmingled with other forms throughout; in others, as in erythema multiforme and dermatitis herpetiformis, it undergoes various transformations, and lesions of the most diverse type are present at the same time.

The lesions may be *symmetrical* in distribution or the reverse: they may be grouped or isolated and irregularly scattered about. Symmetry may be the effect of an irritant circulating in the blood-stream, and acting on the skin. The tissues at corresponding parts of the cutaneous surface have equal powers of resistance; hence symmetry is a characteristic of drug rashes, the eruptions of specific fevers, and generally of skin lesions due to constitutional disturbance.

On the other hand, lesions dependent on other than constitutional causes are often *asymmetrical*: exemplifications of this law are seen in herpes zoster, local diseases such as ringworm, tertiary syphilis, growths such as nævi, etc. Sometimes lesions follow the natural lines of cleavage in the skin; this may perhaps be explained by the fact that the cutaneous blood-vessels

and nerves run along these lines. In many cases the arrangement of lesions in a particular way may be accounted for by structural conditions : thus new patches of lupus frequently develop in the track of lymphatic vessels communicating with pre-existent foci, and the lesions of anæsthetic leprosy correspond with the direction and branching of a nerve trunk. In the majority of cases, however, it is impossible to account for the concentric rings and patches of irregular outline in which lesions tend to group themselves, unless these complex figures may be thought to represent some related conditions of the central nervous system, which has a common origin with the epidermis in the epiblast of the embryo.

The *evolution* of lesions is important in regard to diagnosis, as a knowledge of their mode of spreading and of the phases through which they pass enables us to recognise the identity of lesions differing widely in appearance. Many lesions, as in psoriasis, tinea tonsurans, etc., increase in size by peripheral extension. Some, while continuing to spread at the edge, undergo involution in the centre, as in erythema iris ; in others, again, as in tinea imbricata, extension takes place simultaneously in a centripetal as well as in a centrifugal direction, the area of healthy skin enclosed by the primary ring of eruption being gradually converted into a uniform patch. When neighbouring rings in their expansion meet each other, the parts in contact disappear, the remaining segments forming broken, curved, or wavy lines, or irregular festoon-like figures which sometimes, as in the so-called erythema marginatum, continue to advance at the edge independently.

Much of the history of the affection is sometimes written in the lesions themselves or in their results. For instance, yellowish scabs imply previous pustule.

lation; the record of a discharge may often be seen in stiffened linen; every stain and scar bears its own witness to those who have eyes to read such signs. It is in the earlier stages of an affection that lesions are most likely to be seen in their typical character unmodified by natural evolution or artificial changes. The edge of a patch must always be examined with particular attention, for it is there, when the process is active, that lesions can be seen in their original form. Hence the edge of a patch very often supplies the key to the nature of a disease which in the absence of such evidence it would be difficult, if not impossible, to identify with certainty. The apple-jelly nodules of lupus, the red, moist surface of eczema, the glistening papules of lichen ruber planus, the yellow cups of favus, are generally to be found at the edge of areas of disease when elsewhere all typical lesions have been swallowed up in the secondary changes accompanying the evolution of the process.

The observer must carefully discriminate between the lesions which are the direct result of the morbid process and those which are the consequence of modifying influences, such as scratching (wheals, excoriations, blood-crusts, dermatitis), scarring, with atrophy or hypertrophy, thickening of the epidermis (keratosis), secondary inoculation of pus cocci or other infective material, and local treatment, whether soothing, stimulating, caustic, or surgical. It must be borne in mind that two or more affections may co-exist (for instance, scabies or psoriasis with syphilis), and in such cases of mixed disease it usually happens that one condition more or less completely overshadows the other: thus scabies may mask syphilis, and syphilis may more or less completely disguise lupus vulgaris.

In studying an eruption it is always well to compare corresponding parts together—arm with arm, leg

with leg, ear with ear, and so forth. Concomitant lesions of mucous membranes and enlargement of lymphatic glands must be looked for, and all stains, scars, and other marks of past or present disease must be noted. Lastly, an estimate must be formed of the state of the patient's health, apart from his skin affection.

There are certain affections which can at once be diagnosed by the presence of lesions peculiar to themselves. Thus, burrows, from the distal end of which the itch mite can be extracted, are pathognomonic of scabies; nits on the hair and "hæmorrhagic spots," of pediculosis; broken hairs, of ringworm of the scalp; sulphur-yellow cups, of favus; apple-jelly nodules, of lupus vulgaris; and flat, glistening, purplish papules, of lichen ruber planus. In all these cases the changes incidental to the progress of the disease may so far modify the characteristic lesion as to make it difficult of recognition; but, whenever found, it is conclusive as to the nature of the disease.

In cases of less obvious nature the first step towards the identification of the disease is the elimination of conditions which are clearly "out of court." In the case of chronic processes, congenital malformations, such as xerodermia, must first be excluded. In the presence of an acute eruption the practitioner must guard himself against ridiculous, and possibly disastrous, error by considering the possibility of its being the rash of an infectious fever. In practice it is comparatively seldom that such a question arises; the epidemic prevalence of the disease, the fact of exposure, and the presence of grave constitutional disorder generally leave little room for doubt as to the nature of a febrile exanthem. Now and again, however, the practitioner finds himself confronted with a case in which a diagnosis has to be made almost entirely on the evidence of the eruption itself; and this is not always an easy matter, even for the



most experienced. A brief summary of the main features of the rashes of the principal infectious fevers—scarlet fever, measles, r  theln, enteric fever, smallpox, chickenpox, and typhus—will therefore not be out of place here. Erysipelas must also be included. The rashes occasionally seen in diphtheria, influenza, cholera, and cerebro-spinal meningitis do not concern us, as they are merely accidental phenomena, presenting no characteristic features, and are never likely to be a source of difficulty in diagnosis.

The rash of *scarlatina* shows itself on the first or second day, its appearance being heralded by general febrile disturbance of a more or less severe kind. It is erythematous in character, consisting at first of a multitude of tiny red points, which soon coalesce into a diffused redness of a tint like that of a boiled lobster. The redness disappears on pressure. In very severe cases the eruption presents a purple mottled appearance ; it is purpuric in character, and is therefore not obliterated by pressure. It is usually bright red, but sometimes dusky ; sometimes it is general, in other cases scattered in patches. The rash usually comes out first on the chest, belly, neck, wrists, or back, and spreads to the limbs ; it comes out in fresh crops on one part of the body, while fading on another. It generally disappears by the tenth or twelfth day. Desquamation always follows, and is directly proportionate in its abundance to the intensity of the rash. Sometimes the eruption is so faint and transient as to escape recognition. The skin affections most likely to be mistaken for the exanthem of scarlet fever are certain forms of erythema, especially that described by French writers as “desquamative scarlatiniform erythema” ; urticaria when the wheals have disappeared, leaving small red spots ; belladonna or other medicinal rashes, dermatitis exfoliativa neonatorum and pityriasis rubra.

Billet<sup>1</sup> records a case in which an eruption of malarial origin was at first mistaken for scarlatina. In doubtful cases the chief guides must be the presence or absence of the characteristic strawberry tongue, sore throat, and fever. Between the tenth and the twentieth day of the illness the occurrence of albuminuria may reveal the nature of the disease. The history of a previous attack is not absolutely conclusive against its being one of scarlet fever. Exposure to contagion must also be taken into account.

The rash of *measles* comes out on the fourth day, and almost always appears first on the face. It consists of raised red spots or patches; the latter often run together, and have a marked tendency to assume a crescentic or circular outline. The rash spreads from the face to the body, and from the latter to the limbs. It usually fades on pressure, but in serious cases it is dusky, and even petechial; there is usually considerable swelling of the skin of the face. Desquamation occasionally occurs. The eruption with which it is most likely to be confounded—apart from typhus, *rötheln*, and the early stage of hæmorrhagic smallpox—is that due to *copaiba*. The characteristic symptoms of measles—fever, coryza, and cough—will usually prevent its being mistaken for a skin affection.

The rash of *rötheln* sometimes resembles that of measles, sometimes that of scarlatina; occasionally it begins like measles and ends by resembling scarlet fever. The rash, however, does not, as a rule, tend to assume the crescentic shape so markedly as that of measles, nor has it the same preference for the face. It comes out on the second, third, or fourth day, sometimes on the first; it may be accompanied by sore throat, but without the patches and ulceration on the tonsils

<sup>1</sup> *Bull. et Mém. de la Soc. Méd. des Hôp. de Paris*, April 11th, 1902.



characteristic of scarlet fever. Some enlargement of the posterior cervical glands is a constant sign and is of great diagnostic importance. The eruption disappears in three or four days. It is most likely to be confounded, apart from scarlet fever or measles, with copaiba rash.

The *enteric* fever rash is not as a rule conspicuous. It occurs chiefly on the abdomen and back, and consists of rose-red lenticular spots slightly raised and fading on pressure. They appear in successive crops, each crop lasting some four or five days. It seldom appears earlier than the seventh day. From the dermatologist's point of view, the main thing in connection with rose spots is not to mistake them for flea bites or *vice versa*, an error which I have known to occur. The great point of distinction is that typhoid spots have not, as a rule, a central dark red point of hæmorrhage. Flea bites, moreover, are generally more numerous than rose spots. The two kinds of spots may, of course, co-exist.

The *typhus* rash appears from the fourth to the seventh day. The eruption consists of a general mottling with spots, usually red, slightly elevated, at first disappearing on pressure, but in a day or two ceasing to do so. They ultimately become bluish or brown in colour, distinct petechiæ or subcutaneous hæmorrhages becoming developed in the spots. The general appearance of the typhus rash is fairly well expressed by the term "mulberry rash." It first appears on the front of the trunk, sometimes on the arms and hands.

The *smallpox* eruption generally appears on the third, sometimes on the second, fourth, or fifth day. The true variolous eruption is occasionally preceded by a roseolar rash resembling that of scarlatina. It first appears on the face, especially the upper part, and on the wrists, and extends over the back and limbs. The variolous eruption consists of hard red papules which can be felt embedded in the skin like small shot. In a day or two they become

vesicular, then pustular, and an inflammatory zone develops around them. The centre of each pustule is generally umbilicated, though this is not constant. In mild attacks the pustules remain discrete, in severer cases they are confluent. Maturation occurs about the ninth day. As the pustules dry up or burst, scabs are formed which on separation leave dark stains, scars, and "pits," the number and depth of which are usually proportionate to the severity of the disease. In bad cases hæmorrhage takes place into the skin, and into the interior of the pustules. The mucous membranes, especially that of the mouth, are not unfrequently invaded. In modified smallpox the eruption may resemble that of the unmodified disease, the lesions, however, being less abundant and rarely confluent; or it may consist of merely scattered papules, which abort without vesication or pustulation. In slight cases of modified smallpox the aborted papules may be mistaken for acne in persons subject to the latter affection. Pustular syphilides, when accompanied by constitutional disorder, may be mistaken for smallpox pustules. The iodide of potassium rash, especially when pustular, may simulate variola. The umbilication of the true smallpox pustule, together with the constitutional disturbance, is the chief guide to a correct conclusion.

The eruption of *chickenpox* bears considerable likeness to that of smallpox, but it is essentially vesicular, only occasionally becoming pustular. There are no hard shotty papules. The commonest situations are the face, the chest, the shoulders, the back, and the scalp. Slightly raised red spots generally precede the vesicles. A few vesicles form on the mucous membrane of the palate, mouth, or lips. The rash usually comes out within the first twenty-four hours. There is often scarcely any constitutional disturbance. When the eruption of varicella becomes pustular it may be con-

founded with a pustular syphilide, but the absence of itching is a point of distinction.

In the great majority of cases, as already said, there is little real danger of a purely cutaneous affection being mistaken for the exanthem of an eruptive fever, or *vice versâ*. It is only when the constitutional disorder is so slight as to escape observation that any difficulty as between a symptomatic and a purely cutaneous eruption can occur. It is just these slight, ill-marked cases, however, that constitute a danger to the community, and if the practitioner has any doubt he will do well to isolate the patient at home for two or three days. A precipitate notification of the case as one of infectious disease, with removal of the patient to a fever hospital, is not unlikely to lead to the supposed fever or some other infectious disease being contracted at the hospital.

*Erysipelas* is usually ushered in by considerable constitutional disturbance (rise of temperature, headache, and often vomiting). The eruption, which is erythematous in character, starts, in the majority of cases, from a wound; in other cases, from the margin of a natural orifice where the skin and mucous membrane meet. In simple cutaneous erysipelas it may spread over the skin like fluid on blotting-paper, as a red rash with a well-defined edge. When the underlying connective tissue is involved there is swelling proportionate in amount to the depth to which the process extends. The eruption does not occur in patches, but there is a variety of the affection in which the inflammation moves from place to place, remaining only for a short time in each locality (*erysipelas fugax*).

Zymotic fevers and erysipelas having been eliminated, *feigned eruptions* must next be excluded. In such cases the lesions are always on a part of the body easily accessible to the patient, the front of the chest, the arms,

and the thighs being the regions most frequently operated upon. Moreover, the lesions have not the characters of Nature's handiwork, nor do they conform to the type of any known disease. They generally give evidence of their artificial origin in the regularity of their outline and in the absence of any commencing elementary lesion likely to develop into the conditions present. The subjects are invariably persons of highly neurotic temperament, the large majority of them being young women.

The next group to be considered is the class of *general inoculable diseases* or infective granulomata, particularly tuberculosis, syphilis, and leprosy. Tuberculous lesions, with the exception of lupus, are as a rule associated with the well-known signs of the scrofulous diathesis or with actual tuberculous disease in the lungs or elsewhere. There is no feature *per se* distinctive of a tuberculous lesion in the skin, except the apple-jelly nodule of lupus vulgaris. The diagnosis must therefore be made from concomitant circumstances.

Syphilitic lesions usually betray their nature in their appearance ; but no disease is more likely to perplex the inexperienced, on account of the protean character of the lesions which it causes and the extraordinary closeness with which it often imitates those produced by other affections. There are certain general features more or less characteristic of syphilitic lesions which, taken singly, are inconclusive, but cumulatively have a force amounting almost to proof. These are, in the case of most secondary eruptions, symmetry of distribution, erratic localisation, multiformity of lesion, absence of itching, and, to a lesser extent, peculiarity of colour and shape. With regard to localisation, syphilis should always be suspected when lesions resembling those characteristic of other diseases are found in situations generally avoided by the latter. Thus a patch resembling psoriasis is possibly syphilitic if there are not and have

not been any similar lesions in the situations most affected by psoriasis, especially the tips of the elbows and the fronts of the knees. Polymorphism is a character common to all secondary syphilitic lesions, except macular and erythematous syphilides. A livid colour like that of the lean of raw ham, tending with the lapse of time to become brown and coppery, is always suggestive of syphilis, but is by no means pathognomonic. The same may be said with regard to the shape of lesions. Both eruptions and ulcers due to syphilis have a tendency to assume a horseshoe outline ; this by itself, however, is not distinctive of syphilis. Squamous syphilides have sometimes indefinite objective characters, but their nature will be recognisable in the light of a clear history of a primary sore and subsequent signs of constitutional infection. It must be remembered that syphilis often co-exists with other skin affections : thus a squamous syphilide may be found as it were grafted on seborrhœa. There are also frequently to be found other co-existing evidences of the disease, such as remains of chancre, falling out of the hair, sore throat, pains in the bones ; or marks of its presence in the form of scars or enlarged glands in the sub-occipital region, groins and other parts, or nodes on the shins, etc. In late tertiary syphilides the distinctive features are absence of symmetry, their marked tendency to spread serpiginously and to ulcerate. Furthermore, they are followed by scarring, and on the scalp by total destruction of hair.

In suspected leprosy the first rough test is the presence of anæsthesia in the lesions. The patient's previous history in respect of residence in an affected area may afford confirmatory evidence.

The next category of diseases to be excluded is the *local inoculable group*, comprising those caused by (1) animal and (2) vegetable parasites, and (3) those caused by various micro-organisms. In the first of these

subdivisions the affection of greatest practical importance is scabies. Here conclusive proof is afforded by the presence of the acarus. The burrows must be looked for in the webs between the fingers, and about the wrists. The fact that there are no lesions on the face in a given case is presumptive evidence that the disease is itch. The presence of nits on the hairy parts, or of the characteristic "hæmorrhagic spots," is conclusive of pediculosis. Among the vegetable parasitic diseases the most important are ringworm, favus, and tinea versicolor. Each of these affections has characteristic features, by which it can at once be identified. Thus in ringworm the broken hairs on the scalp, the circinate lesions on the body, and the presence of the special fungus, are conclusive. Favus is recognised by the sulphur-yellow cups and mousy smell; tinea versicolor by the characteristic fawn-coloured spots almost exclusively seen on covered parts of the body and in adults. In the third subdivision contagious impetigo is recognisable by the isolated scabs without inflammatory halo, looking as if they had been stuck on with gum (Tilbury Fox).

The *skin diseases of nervous origin* are recognisable either by the lesions being distributed in correspondence with the area of distribution of a particular root, as in herpes, or by their occurring in persons of markedly neurotic temperament, or as the result of a definite injury to the nervous system, or of mental shock.

New growths on the skin may be confounded with nodular formations of tuberculous, syphilitic, or leprotic nature, with the swellings of erythema nodosum, or with abscesses and cysts. Erythema nodosum may be identified by its localisation (legs and arms), the associated rheumatic symptoms, if present, and history, and the speedy subsidence of the swellings; collections of fluid by fluctuation or thrill.



Having by this process of exclusion come to a decision—subject, of course, in many cases to revision in the light of fuller knowledge—as to what the affection is not, the next step is to form a judgment, or, rather, a working hypothesis, as to what it is. In the first place it must be noted whether the eruption is general or localised; next the nature and distribution of the lesions must be observed in greater detail than has already been done. General eruptions, being associated with some alteration in the condition of the blood, are, as a rule, more or less symmetrical. A diffuse red rash is seen in scarlet fever, measles, and the period of invasion in syphilis; such an eruption often accompanies the development of nodules in tubercular leprosy; it occurs in urticaria, erythema, eczema, pityriasis rubra, and follows the internal administration of various drugs—chloral, belladonna, copaiba, antipyrin, mercury, opium, nux vomica, quinine, tar, stramonium, sulphonal and salicylic acid, and the salicylates. The diagnosis must be made by the clinical history, the degree and character of the constitutional disturbance, and the nature of the associated symptoms. Thus, in syphilitic roseola there will be a history of infection, enlargement of glands, sore throat, etc.; in tubercular leprosy there will be found more or less perceptible infiltration of the erythematous patches, usually accompanied by some functional disorder of the glands of the affected skin, and by abolition or exaltation of sensation. In the case of scarlet fever and measles the date of invasion is important, and the other points already indicated must be taken into account. Diffuse red rashes due to drugs have nothing characteristic about them, and can be diagnosed only by the exclusion of other possible causes combined with examination of the urine and such circumstantial evidence as can be gleaned from associated symptoms, the discovery of bottles, and so on. The more purely

cutaneous affections, such as urticaria, eczema, etc., will be recognised as the lesions develop into typical forms.

In the diagnosis of localised eruptions we have, generally speaking, fewer side-lights from constitutional disturbance and clinical history to guide us. There are, however, certain features characterising lesions in particular situations which often furnish a clue to their nature. The following is a summary of these as they relate to eruptions of different types—erythematous, papular, vesicular, bullous, pustular, wheals, ulcers, and dry scaly lesions—when limited to a particular part, such as the scalp, the face, the hands (especially the palm), or the genitals.

*Scalp.*—On the scalp the chief difficulty in diagnosis is with regard to pustular lesions and dry scaly eruptions. Of the pustular type the chief are contagious impetigo and pustular syphilides. The distinctive feature of the former is that the lesions are not surrounded by a zone of hyperæmia, but, as already said, look as though they were stuck on with gum ; on the other hand, in the case of pustular syphilides, when the scab is picked off there is usually an ulcer underneath, in the older lesions. In pustular eczema, again, the course of the disease is different ; there is, or has been, “weeping,” especially behind the ears, and the lesions are not isolated like those of contagious impetigo. In lupus erythematosus there are often crusts which resemble scabs ; they are not, however, formed by the drying up of pustules, but by sebaceous matter ; moreover, on picking off a portion of the crust its under surface will be seen bristling with prickle-like projections, corresponding to the dilated orifices of ducts which they have plugged.

A dry scaly eruption of the scalp is either seborrhœa, seborrhœic eczema, psoriasis, tinea tonsurans, favus, or a squamous syphilide, which again may be secondary or tertiary. The distinctive feature of seborrhœa is



that there is no redness or sign of inflammation under the scales. In seborrhœic eczema, on the other hand, the surface beneath the scales is red, and each patch has an erythematous zone around its edge. Moreover, the scalp alone is seldom affected, and the disease spreads *downwards* to the face, the back, and the chest. Psoriasis, also, is present in other parts, especially on the elbows and knees, and has, as a rule, spread *upwards* to the scalp. In this situation it generally occurs in localised patches, and in typical cases the scales have a characteristic silvery grey appearance. It may here be said, however, that little reliance can be placed on mere differences in the character of the scales in any of the conditions here referred to, when they occur on hairy parts. Ringworm and favus can always be recognised by the distinctive characteristics already mentioned, and, if there be any doubt, it is removed by the detection of the fungus with the microscope.

In the case of secondary squamous syphilides there is nothing characteristic in the appearance of the lesions, and the diagnosis can be made only by the history, the presence of more distinctive lesions or marks elsewhere, and the effect of specific treatment. In the case of tertiary squamous syphilides there is often no other concomitant lesion to guide one, but the characteristic ser-piginous outline and the marked tendency to ulceration, followed by scarring, are sufficiently distinctive.

*Face.*—Red patches limited to the face, and especially affecting the cheeks and the nose—the so-called “flush area”—may be erysipelas, erythema, lupus erythematosus, rosacea, or lupus vulgaris. Erythema comes on suddenly; the patch has a well-defined edge, and the eruption is not accompanied by constitutional disturbance. Erysipelas, on the other hand, is accompanied by more or less severe febrile phenomena; the patch has a well-defined edge, which advances rapidly while

the process is in the active stage ; the affected skin is tense often to such a degree as to cause great pain on movement. Both in erythema and in erysipelas, vesicles and bullæ may form on the inflamed surface. Lupus erythematosus is much slower in its course than either of the affections just named ; the patch has often a characteristic outline like a butterfly with expanded wings ; there is almost invariably more or less atrophic scarring in the centre, and on detaching a portion of the crust tags of sebaceous matter will be seen projecting from its under surface. Lupus vulgaris can in most cases be recognised by the characteristic apple-jelly nodules ; if these are not at first visible, they can often be brought into view by stretching the skin, or by pressing the blood out of it with the finger. In rosacea there is no defined edge, the surface is knobby with papules and pustules, and is traversed by small varicose veins, and there is no scarring. Most of the conditions that have been mentioned may be more or less closely simulated by syphilis ; there is always something wanting, however, which makes the imitation imperfect. Thus the absence of acute general symptoms differentiates a syphilitic lesion from erysipelas ; the absence of sebaceous plugs from lupus erythematosus ; the absence of apple-jelly nodules from lupus vulgaris ; and the absence of dilated veins on the affected surface from rosacea.

Ulcers on the face may be scrofulous, lupous, syphilitic, or malignant. Scrofulous ulcers are mostly seen in children of strumous aspect or in elderly people with marks of lesions dating from early life. They have no absolutely distinctive characters, but the edge is often undermined and the surrounding skin blue and of low vitality. In lupus, ulceration is extremely chronic ; the edge of the sore is generally more or less rounded, and the process is very superficial, never extending to the bones. Syphilitic ulceration, on the other hand,

frequently attacks the bones of the face and is more rapid in its course. Rodent ulcer usually occurs in persons beyond middle life, and often attacks the face about the outer edge of the orbit or the side of the nose. The ulcer is rounded in outline, has a firm raised "rolled" edge and a depressed centre with little appearance of granulation, and a scanty inoffensive discharge; the process is almost painless. In epithelioma, on the other hand, the edge is everted and very hard; the base of the ulcer is foul and roughened with granulations; the neighbouring glands are enlarged; pain is often very severe, and the whole process is more rapid and more aggressive.

Nodular lesions on the face may be due to tuberculosis, syphilis, or leprosy. The tuberculous (lupus) nodule has a characteristic gelatinous or apple-jelly appearance, which once seen cannot be mistaken for anything else. Nodular syphilides may be secondary or tertiary manifestations. In the former case they are generally solitary or very few in number; they are coppery in colour, and are usually associated with other syphilitic lesions elsewhere. In the tertiary form they are frequently dotted thickly over the face, especially on the forehead, down the sides, and on the nose; they often coalesce, giving rise to a diffuse infiltration which is apt to break down into ulcers, at the edge of which younger nodules are visible. Gummata are painless and develop rapidly; when they break down a puriform fluid exudes and a cavity is left which, if the patient is left untreated or is out of health, may spread. There is no induration or turning out of the edge, and no involvement of neighbouring glands. Leprotic nodules develop slowly; they are yellowish-brown in colour, and may attain the size of a hen's egg. They are at first hyperæsthetic, but when fully developed usually anæsthetic. Their formation is in most cases associated

with a presumption of leprosy from the co-existence of other signs of the disease, and from the fact of a patient having lived in a region where it is endemic.

Small tumours on the face may be molluscum contagiosum, milium, adenoma sebaceum, or xanthoma tuberosum. In molluscum contagiosum each growth has a central depression in which there is a small opening out of which a substance like sebaceous matter can be squeezed. This substance consists of particles of new growth. Milium, on the other hand, has no external opening; but when it is pricked exit is given to sebaceous matter. Adenoma sebaceum is usually congenital, and occurs with nævoid conditions. Xanthoma tuberosum is of a yellowish pearly colour; when it is pricked nothing can be squeezed out, the growth being composed of connective tissue.

*Hands.*—The eruptions limited to the hands are principally vesicular, bullous, or dry and scaly in character. Artificial dermatitis, from contact with irritating substances, such as lime, etc., must first be excluded. Vesicular lesions are present in eczema, cheiropompholyx, and scabies. In eczema the lesions tend to run together, the disease spreads to other parts, and there is, or has been, “weeping.” In cheiropompholyx, on the other hand, there may be discharge, but there is no weeping; the lesions do not tend to run together as in eczema, and there is no eruption in other parts. The affection runs a more or less regular course, and shows a marked tendency to recur. In scabies the lesions are isolated; the characteristic burrows and acari at once establish the nature of the affection.

Dry scaly eruptions are mostly localised on the palm. Both hands or only one may be affected. In the former case the affection may be psoriasis, eczema, syphilis, lichen ruber planus, xerodermia, or keratosis. It is impossible to diagnose the nature of the case from the

dry scaly character of the eruption alone. Psoriasis is indicated by the presence of characteristic lesions elsewhere, notably on the elbows and knees, and perhaps on the scalp; or there may be a history of an eruption on these parts. In eczema there is a history of "weeping" in the part itself, or eczematous lesions are present in other situations. Lichen ruber planus of the palm is also associated with similar lesions in other parts. If it is a secondary syphilitic lesion, there will be a history of infection and other signs of the disease. Xerodermia is nearly always congenital. Keratosis is also sometimes congenital, in which case it is to be regarded as a form of xerodermia; and the affection of the palms is generally associated with dryness and hardness of the skin in other parts. On the other hand, keratosis may be the result of a previous inflammatory process, such as dermatitis or eczema, or of arsenic taken internally; the history in such cases will give the clue to the nature of the affection. Scaly eruptions affecting one palm, if syphilitic, are tertiary. It is, as a rule, only by such side-lights as have been mentioned that the nature of a dry scaly eruption of the palm can be recognised. The eruption itself, however, often presents definite features which, even in the absence of collateral evidence, should at least suggest the nature of the process of which it is a part. In psoriasis and lichen ruber planus the scales are usually massed in small, hard, circumscribed, corn-like patches; but in acute cases of the latter affection, the whole hand, both palm and back, may be uniformly affected with general thickening and œdema. In eczema there is not only scaling, but thickening and often fissures. Syphilitic patches are irregular in shape, and often cracked on the surface; the scales are not piled up, but peel off; the lesions spread serpiginously. In xerodermia there is comparatively little scaling; the skin is dry and polished. In keratosis the thickening is

very marked, especially round the circumference of the palm, the hollow of the hand being generally less affected.

*Nails.*—Lesions of the nails may be due to psoriasis, eczema, lichen ruber planus, syphilis, favus, or ringworm. Most of these affections can be diagnosed only from the co-existence of characteristic lesions in other situations. In the case of ringworm and favus the fungus can be detected by examining scrapings of the affected nail with the microscope.

*Genitals.*—A vesicular eruption about the genitals of either sex may be herpes, eczema, or scabies. The first of these is characterised by tiny vesicles grouped on an inflamed base; when suppuration occurs it may simulate a soft sore, but the discharge is not auto-inoculable. Eczema usually begins in vesicles which are arranged in groups; it is aggravated by chafing (as between the scrotum and the thigh), and shows an erythematous surface which may be moist or dry and scaly, but is always inflamed and angry; the itching is almost intolerable, and pustules and various other secondary lesions are produced by scratching. In scabies the lesions are scattered about, not grouped as in eczema; here again the typical appearances are generally more or less destroyed by scratching, but careful search will reveal burrows and acari. Ringworm affecting the perineum and genitals (eczema marginatum) can be identified by its fungus.

Ulcers of the genitals are chiefly venereal. The syphilitic or infecting sore is distinguished by its raised edge, indurated base, and the fact that it is usually single; the non-infecting, or soft sore, by the irregularity of its shape, the absence of hardening, and the fact that it is usually multiple. Squamous and other secondary syphilides about the genitals are to be recognised by the absence of itching and other symptoms of the disease.



In concluding this rapid survey of the salient points which the observer should take as his guides in the diagnosis of skin affections, I wish once more to emphasise the fact that in the majority of instances they will only suffice to establish a *prima facie* case as regards any particular disease. The object I have had in view has not been to give a full account of all the features which differentiate one affection from another, but to put the student in the way of "reckoning up" a case in a simple, rapid, and logical manner. By the process of exclusion which has been briefly, but I hope sufficiently, illustrated, the observer will, if he fails at once to identify the disease, at least be able to reduce the case before him to a group of affections having close affinities with each other, the study of which he can then pursue in detail, in the sections treating of them. The chapter is, in fact, intended to be an introduction to the right use of presumptive evidence, and of clues supplied by the disease itself to the identification of affections of the skin. It can hardly be necessary to repeat that a diagnosis of the kind here referred to must, as a rule, be regarded as merely provisional until it has been confirmed by the results of a study of the case in all its bearings.



## CHAPTER IV

### AFFECTIONS OF THE SKIN DEPENDENT ON NERVE DISORDER

#### CLASSIFICATION OF DERMATONEUROSES

THE diseases treated of in the following chapters (Chapters V. to X.) are generally described separately as different forms of inflammation of the skin. An attempt is here made to group them together by the bond of a primary cause common to them all. Widely different from each other as herpes and leucodermia may appear to be in every other respect, the essential etiological factor—namely, disturbance of innervation—is the same in both. Erythema, pemphigus, herpes, and perhaps lichen, may be regarded as connecting links between simple vaso-motor disturbance, as represented by urticaria on the one hand, and the results of grave structural lesions of the nervous system, as displayed in Raynaud's disease and diabetic gangrene, on the other. In studying this chapter the reader will do well to draw a sharp line of demarcation between the clinical and pathological *facts* herein set forth and the chain of *theory* by which it is sought to bind them together. The former rest on a sure foundation of observation and experience; the latter, like all chains, is only as strong as its weakest link.

The skin affections dependent on lesion or functional disorder of some part of the nervous system

may provisionally be classified under the following heads <sup>1</sup> :—

1. Pure sensory disturbances—anæsthesia, hyperæsthesia, paræsthesia, pruritus.

2. Pure motor disturbances—"goose-skin," contraction of the muscles and the hair follicles.

3. Pure vaso-motor disturbances, causing abnormal contraction or dilatation of the arterioles supplying the skin—*e.g.* urticaria, certain forms of erythema, circumscribed œdema, cutaneous hæmorrhages.

4. Trophic disturbances, causing local disorders of nutrition. This class includes certain erythemas, "glossy skin," pellagra, certain eczemas, zoster, pemphigus, and certain forms of ulceration and gangrene—perforating ulcer, bed-sore (Charcot), Raynaud's disease, and some varieties of œdema, sclerodermia, and abnormalities of pigmentation. Certain lesions of the nails, such as "splitting," belong to this category.

5. Glandular disturbances, which fall naturally, in accordance with the kind of gland affected, into the following subdivisions: (*a*) *sweat glands*—hyperidrosis, hæmatidrosis, etc.; (*b*) *sebaceous glands*—rosacea, seborrhœa; (*c*) *hair follicles*—baldness, greyness. It will be convenient, however, to consider these conditions in a separate chapter.

It must be borne in mind that this classification is still largely of a tentative character; but it may be found useful as a help in the provisional arrangement of observed facts.

As to the connection of disorders of the skin with lesions of particular parts of the nervous system, little is yet definitely known. That the *brain* is largely concerned in the development of certain cutaneous affections is shown by the frequency with which erythema, der-

<sup>1</sup> H. Leloir: "Des Dermatoneuroses"; reprinted from the *Journ. des Mal. Cut. et Syph.*, April, 1890.

matitis herpetiformis, and lichen ruber planus can be directly traced to violent mental emotion. Pigmentary changes are also often the result of nervous shock—a fact illustrated by the whitening of the hair which sometimes takes place under the stress of sorrow or anxiety, or even suddenly under the influence of a great fear. The comparative frequency of leucodermia in the insane and in epileptics is probably attributable, at least in some measure, to abolition or suspension of cerebral control. Facts have been recorded which seem to indicate that severance of nervous communication with the brain may affect the distribution of an eruption.<sup>1</sup> The brain acts on the skin through the medium of the sympathetic, and its influence in the production of cutaneous eruptions is measured by the degree to which it inhibits the vaso-motor centre. In the majority of cases no visible changes in the encephalon have been found in relation with lesions in the skin. Bourneville and Poirier have, however, reported a case in which partial discoloration of the skin was associated with a tumour in the left fronto-parietal lobe.<sup>2</sup>

Cutaneous eruptions are frequently associated with lesions of the *spinal cord*, the posterior columns of which play a leading part in the nutrition of the skin. Any abnormal condition which affects them is, therefore, not unlikely at some stage of the process to find an echo in the integument. This is especially the case in locomotor ataxy, in which skin lesions of the most varied kinds are of common occurrence. In the early stages erythema simplex and erythema nodosum, urticaria, papular eruptions, eczema, herpes zoster, pemphigus, pustules, ulcers and gangrene, have been met with; their appearance

<sup>1</sup> See Crocker: "Lesions of the Nervous System Etiologically Related to Cutaneous Disease"; *Brain*, vol. vii. (1884-85), p. 343 *et seq.*

<sup>2</sup> *Progrès Médical*, 1879.

is usually coincident with exacerbation of the lightning pains, and, as a rule, their distribution is limited to the course of the nerve along which the pain is felt.<sup>1</sup> In the later stages of ataxy, perforating ulcer of the foot, shedding of the great toe-nail, leucoderma, petechiæ and ecchymoses, unilateral swelling, and œdema have been observed. It is probable that sclerosis of the posterior columns is the particular condition most frequently associated with skin eruptions; but as, even in ataxy, such eruptions are not the rule but the exception, it would seem that something besides the lesion of the cord is required for their production. In some cases of acute disease characterised by bullous eruptions (Schwimmer, Meyer), the most striking lesion in the cord was sclerosis of the columns of Goll. As to the relation of disease of the other divisions of the cord to affections of the skin, the pathological evidence is at present ambiguous or negative.<sup>2</sup> In spinal meningitis herpetic and pemphigoid eruptions are not uncommon; and Erb says that herpes and bullæ are often associated with slow compression of the cord. In both cases the skin lesions are probably in direct relation with changes in the posterior columns or the issuing nerves. Skin eruptions may, however, occur in connection with disease in the cord—as in the case of acute ascending paralysis—where no visible lesions are to be found.

The influence of disease of the spinal cord on cutaneous eruptions is well demonstrated in cases of syringomyelia, especially in Morvan's disease.<sup>3</sup>

<sup>1</sup> Crocker, *loc. cit.*, p. 350.

<sup>2</sup> Schwimmer's cases are reported in his "Die neuropathischen Dermatosen," a work in which the nervous origin of many skin lesions was first fully discussed and illustrated by many striking cases. (Vienna, 1895.)

<sup>3</sup> Morvan: *Gaz. Hebdom.*, 1883, No. 35 *et sqq.*; Jeoffroy and Achard, *Arch. de Méd. Expériment.*, 1890-1895; Schlesinger, "Syringomyelia." (Vienna, 1895.)

Bärensprung has shown that herpes zoster is the direct effect of inflammation of the spinal ganglia corresponding to the nerves in the area of distribution of which the eruption occurs. In some cases, however, herpes zoster seems to depend on a lesion of the posterior spinal roots, the cord and the ganglion being to all appearance healthy. Herpes frontalis has been found associated with inflammation of the Gasserian ganglion, or hæmorrhage into that body (Kaposi). In other cases herpes has seemed to be due to injury or neuritis of the trunk itself (Dubler); but in these cases it is obvious that the inflammation may easily have extended upwards to the spinal ganglion. The same may be said with regard to other cases in which herpes is a consequence of peripheral irritation.

The skin lesions that have been observed to follow gunshot and other injuries to nerves are a very persistent variety of erythema resembling abscess and described by some writers as erythema nodosum, herpes, bullæ, ulceration—simple and perforating, eczema, “glossy skin” (Weir-Mitchell), defects of hairs and nails, pigmentary changes, chronic œdema, and a condition resembling ichthyosis. The eruption of bullæ on the fingers and toes, which often accompanies the shooting pains in the early stage of anæsthetic leprosy, may be grouped under this head, as they are caused by inflammation of the nerves of the limb.

In cases of skin eruption (pemphigus, leucodermia) the cutaneous nerves in the neighbourhood of the affected part have sometimes been found to be in a condition of atrophic parenchymatous neuritis; but it is doubtful how far in such cases the peripheral lesion has been independent of central changes. It must be recollected that in many forms of so-called peripheral neuritis the nerve changes are in reality degenerative, and secondary to influences acting on the cell in the cerebro-spinal axis,

of which the axis cylinder process is only the remote peripheral prolongation. It seems to me at any rate probable that, as Crocker says, the cutaneous nerves do not give way until the central influence is weakened. The direct evidence as to the influence of lesions of the sympathetic in the production of skin eruptions is inconsiderable.

Eruptions, such as erythema of a transient kind, urticaria and rosacea, may also be caused by reflex irritation from some distant part, especially the uterus, the stomach, and the intestines.

Many of the eruptions associated with nervous lesions are modified by the fact that the skin, deprived of efficient trophic control, becomes an easy prey to bacteria of various kinds.<sup>1</sup>

To sum up, the action of the brain on the skin varies according as its control over the vaso-motor system is increased or diminished. In the cord, the fibres that regulate the nutrition of the skin are bound up with the sensory fibres, and consequently are in the posterior columns; outside the cord they run through the posterior roots and spinal ganglia, with the sensory fibres, and lesions of one or more of these may be followed by eruptions on the skin. It must be borne in mind that precisely similar lesions in a nerve centre may, in different individuals, or in the same person at different times, produce widely different effects on the skin, and still more often may produce none at all. There are, as already said, other conditions which have a determining influence on the development of eruptions, of which nothing is at present known.

Besides the various modes of influence of the nervous system upon the skin which have been referred to, cutaneous lesions may be indirectly of nervous origin when, owing to injury or to the condition of impaired nerve

<sup>1</sup> Galloway, *Brit. Journ. Derm.*, vol. vii., pp. 304-308.



force conveniently designated by the term "neurasthenia," the innervation of the tissues is defective, and the skin and other parts are therefore more vulnerable than in the normal state.

Of skin lesions in connection with hysteria and other neurotic conditions there is not much to be said in the present state of knowledge. Among the forms of cutaneous affection which have been observed in connection with hysteria are erythema, urticaria, pemphigus, dermatitis, pigmentation, hyperidrosis, chromidrosis, and hæmatidrosis.<sup>1</sup> There is nothing characteristic in the lesions. One point of difficulty in the subject is to eliminate the element of fraud or unconscious deception in such cases. Van Harlingen<sup>2</sup> holds that while in some cases the lesions are self-inflicted, the majority of cases are the result of a profound affection of the nervous system. Charcot<sup>3</sup> has recorded cases of "hysterical œdema" which may ulcerate and simulate cancer; under the name "unilateral swelling of hysterical hemiplegia"<sup>4</sup> a similar condition has been described by Weir-Mitchell; and Renaut has described a "gangrenous urticaria" of purely neurotic origin.<sup>5</sup>

It has already been stated that in the production of skin lesions the nerve centres operate mainly through the agency of the vaso-motor system. In all cutaneous eruptions of nervous origin the mechanism of their

<sup>1</sup> A large number of cases of hysterical neuroses of the skin in which recovery took place are collected and critically analysed by Van Harlingen in the *Amer. Journ. Med. Sci.*, July, 1897. See also Rasch, *Derm. Centralbl.*, 1899, No. 11.

<sup>2</sup> *Journ. Cut. Dis.*, Sept., 1903.

<sup>3</sup> Gilles de la Tourette: "Traité Clinique et Thérap. de l'Hystérie," vol. i. (Paris, 1891.)

<sup>4</sup> *Amer. Journ. Med. Sci.*, vol. lxxxviii., 1884.

<sup>5</sup> *Médecine Moderne*, February 20, 1890. See also Max Joseph, "Multiple Neurotic Gangrene of the Skin" (*Arch. f. Derm. u. Syph.*, Bd. xxxi., Hft. 3, June, 1895).



production is the same. The process is "angio-neurotic" in character—that is to say, a disturbance propagated from the centre, or reflected from the periphery, sets up a corresponding disturbance in the vaso-motor centres in the spinal cord, with the result that the circulation at certain parts is thrown into disorder. The blush of shame and the pallor of fear illustrate the effect of mental emotion—*i.e.* disturbance of the higher cerebral centres—on the vaso-motor system, and through it on the skin. The rashes of fevers and the eruptions caused by certain drugs exemplify the action of the cerebro-spinal centres on the integument; these centres are in the first place irritated by the poisonous material circulating in the blood, and this irritation reacts through the vascular system on the skin. The effect of peripheral irritation is illustrated by the consequences which in some persons follow contact with certain species of hairy caterpillars. Intense local hyperæmia, quickly followed by the development of a wheal, is the first result of the direct irritation of the sensory filaments. Soon, however, when the peripheral irritation has had time to make itself felt in the centres, an answering disturbance is excited in parts around the original seat of irritation, and this may reach such a pitch that scratching will at once bring out an abundant crop of similar lesions. A good example of reflex angio-neurosis is found in urticaria, in which the irritation of the pneumogastric nerve by the offending agent—*e.g.* shell-fish in the stomach—is reflected from the centre to the skin.

The character of the lesion produced by disordered innervation in any particular case is to some extent a question of the degree of vascular disturbance; but that other elements of a less simple nature are concerned in the process is proved by the fact that in varicella or pemphigus exudation may occur without precedent hyperæmia.

## CHAPTER V

### AFFECTIONS OF THE SKIN DEPENDENT ON NERVE DISORDER (*continued*)

#### GENERAL PRINCIPLES OF TREATMENT

IN the **treatment** of skin affections dependent on nerve disorder there are certain general principles applicable to all alike, besides special measures which are more particularly indicated in some of them. The latter will be described separately.

In all cases the first thing to be aimed at is to soothe the nervous disturbance which is at the root of the mischief. Attention must next be paid to any underlying constitutional state or functional disorder which tends to aggravate the skin affection. Lastly, symptoms, subjective and objective, must be relieved. Treatment must therefore be general (including hygienic measures, as well as internal medication) and local.

For the soothing of the nervous irritability an essential element in treatment is physiological rest. Excitement of any kind, violent mental emotion or anxiety, overwork, and especially worry, should as far as possible be avoided. A skin affection that defies all treatment while the patient is harassed by business cares will often quickly disappear if he takes a holiday. Change of scene and healthy amusement are powerful factors in restoring tone to the over-strained nervous system. Exercise, always well within the limits of endurance, promotes the restoration of the functional efficiency of the skin ; and

I have seen the greatest benefit follow a course of massage. If the cutaneous phenomena be accompanied by a high degree of nervous excitability, sedative drugs must be used, but only with the greatest discretion both in the choice of the drug and in the quantity administered. Chloral and bromide of potassium are generally contra-indicated, on account of their tendency to cause skin eruptions. If a narcotic be imperatively called for, *opium* is at once the least objectionable and the most efficient; it may be given by the mouth, or in suppository. *Paraldehyde* may be administered when opium is unsuitable; it may be given in a single dose of *half a drachm to a drachm*, repeated, if need be, in half an hour. It has the special advantage in the kind of cases under consideration that it has no effect on the skin. In lunatics it is very useful in a dose of 15 *grains* given at bedtime. *Phenacetin* and *antipyrin*, in doses of 5 to 10 *grains*, are also useful. *Cannabis indica* is sometimes a useful sedative, but must be administered with great caution. On the whole, sedatives must be looked upon as necessary evils, and should never be given except in response to the clearest indication.

Nerve tonics, on the other hand, are generally most useful. Those on which I place the greatest reliance are *quinine*—combined with *belladonna*—*arsenic*, and *valerian*. Quinine and belladonna may be given in a pill composed of *gr. ½ of sulphate of quinine with gr. ⅓ of extract of belladonna*, or in a mixture containing *ten drops of the tincture of belladonna to ℥j of the tincture of quinine*. Valerian may be given in a mixture composed of *℥x of tincture of valerian with an equal quantity of tincture of asafoetida, ℥ss of compound spirit of lavender, and water to ℥j*, the dose to be taken every three hours; or in a pill containing *valerianate of zinc gr. j, compound asafoetida pill gr. ij*, to make one pill, one or two to be taken every four hours. Valerian may be combined

with quinine in a pill composed of *valerianate of zinc* gr. j, *sulphate of quinine* gr.  $\frac{1}{2}$ , *compound rhubarb pill* gr. j, and *extract of gentian* gr. j. Arsenic is best given in the form of Fowler's solution. Three (gradually increased to five or even eight) minims in a wineglass of water should be taken three times a day, after meals; or a pill composed of *arseniate of sodium* (gr.  $\frac{1}{4}$  to  $\frac{1}{12}$ ) and *quinine* (*quin. sulph.* gr.  $\frac{1}{2}$ ) may be given. Arsenic may also be given in the form of the "Asiatic pill," much used on the Continent. The following is the formula: *Arsenious acid* gr.  $66\frac{3}{4}$ , *powdered black pepper* ℥ix, *gum Arabic* and *water* q.s. To be divided into 800 pills, each of which contains gr.  $\frac{1}{12}$  of arsenious acid.

In all cases of skin disease with marked nervous symptoms, any functional disorder of internal organs that may be a source of reflex irritation must be dealt with by appropriate measures. The bowels must be regulated, digestive disturbance—whether hepatic or gastro-intestinal—must be remedied, and, in women, menstrual irregularity or other uterine trouble must be corrected. The constitutional conditions most frequently associated with skin affections of neurotic origin are gout, rheumatism, and glycosuria; these must be treated on general medical principles. As regards diet, the guiding principle must be to forbid all food of a stimulating or constipating character, a sound practical rule being that the patient should avoid whatever causes flushing of the face lasting for some time after a meal. Total abstinence from alcohol should, as a rule, be enjoined. The clothing should be loose and not too heavy, and, generally speaking, the patient should—especially when in bed—keep himself as cool as possible, short of discomfort.

Local treatment resolves itself into protection of the affected parts from the air, the subduing of inflammation, the relief of itching, and the cure of secondary

lesions caused by scratching and the inoculation of pyogenic material. The inflamed surface may be protected by dusting thickly over with powders, such as *oxide of zinc* 1 part, to 3 parts of powdered rice, starch, maize, or kaolin; or *boric acid reduced to fine powder* 1 part, to 3 parts of rice, starch, kaolin, or white fuller's earth; or  $\mathfrak{Mxvj}$  of creosote in  $\mathfrak{Zj}$  of kaolin. A hot fomentation should be applied over the powder so as to vaporise the creosote and keep the part in an antiseptic atmosphere. Another useful powder is the following: *Salicylic acid* 3 parts, *powdered talc* 87 parts, *powdered starch* 10 parts. Powders are best applied by dusting a muslin bag previously filled with them over the part. Unna's powder-bags may also be employed. They are made of old used linen or other material not too thick, the pieces being evenly cut and sewn together in the form of a bag, except at one border, which is left open so that the bag may be partly filled with rice or potato meal. When closed, the bag is sewn with quilt stitches through and through, in order to keep the powder evenly distributed; it is then placed on the affected skin and tied in position. Fatty substances must not be applied to the skin at the same time, as they fill up the interstices of the bag. For the arms and legs two sleeves, or the legs of a pair of fine drawers, stockings, etc., one placed within the other, with the space between filled with powder, should be used. For the genitals the bag can be fastened on with a suspensory bandage; a broad muslin bandage can be used for the body, and bags can be shaped into masks for the face.<sup>1</sup> Sedative astringent lotions are preferable when much heat and irritation are complained of. The most generally useful is calamine lotion, composed of *prepared calamine*  $\mathfrak{Ziv}$ , *oxide of zinc*  $\mathfrak{Zij}$ , *pure glycerine*  $\mathfrak{Zjss}$ , and *rose-water*  $\mathfrak{Zvj}$ ; carbolic acid may, if it seem

<sup>1</sup> "Selected Monographs on Dermatology," New Sydenham Society. London, 1893; p. 73.

desirable, be added to this lotion. Lead lotions are also very serviceable:  $\mathfrak{m}\text{x}$  to  $\mathfrak{m}\text{xxx}$  of the solution of the subacetate with glycerine  $\mathfrak{m}\text{xv}$  and water  $\mathfrak{z}\text{j}$ ; or  $\mathfrak{z}\text{ij}$  of the solution of the subacetate with  $\mathfrak{z}\text{ij}$  of fresh milk may be applied by means of a piece of rag kept wet with the lotion. The following is an excellent lotion when there is much hyperæmia: *Subnitrate of bismuth* gr. x, *oxide of zinc*  $\mathfrak{z}\text{ss}$ , *glycerine*  $\mathfrak{m}\text{xv}$ , *hyd. perchlor.* gr.  $\frac{1}{4}$ , *rose-water*  $\mathfrak{z}\text{j}$ . *Cooling ointments*, such as "cold cream" and the unguentum plumbi subacetatis, are often of service in allaying heat and reducing local congestion. The following is the formula of an excellent cold cream:  $\mathfrak{R}$  *Ceræ cetacei*,  $\bar{a}\bar{a}$  1·0, *ol. amygdal.*, *aq. rosarum*,  $\bar{a}\bar{a}$  10·0. M. Other useful formulæ are:  $\mathfrak{R}$  *Lanolin. anhyd.* 10, *adip. benzoat.* 20, *aq. rosæ* 30 (Unna);  $\mathfrak{R}$  *Lanolin. anhyd.* 10, *adip. benzoat.* 20, *aq. calcis* 30; and  $\mathfrak{R}$  *Lanolin. anhyd.* 10, *adip. benzoat.* 20, *liq. plumbi subacetatis* 30. The following is recommended by Jamieson as a most useful soothing ointment: *Zinci carbonatis*  $\mathfrak{z}\text{j}$ , *acidi salicylici* gr. x, *vaselini*  $\mathfrak{z}\text{j}$ , *cerati Galeni* (cold cream) *ad*  $\mathfrak{z}\text{j}$ . M. *Boric acid ointment* is an excellent application, especially in moist parts, as between the thigh and scrotum. It should be prepared as follows: *Paraffin* ( $135^{\circ}$  or  $140^{\circ}$ ) 5 parts, *vaseline* 15 parts, and *boric acid in fine powder* 4 parts (Martindale). The substance which is perhaps more effectual than any other for the reduction of hyperæmia is *ichthyol*. This may be applied as an ointment (10 to 20 per cent.), or a paste prepared as follows:  $\mathfrak{R}$  *Sulpho-ichthyolate of ammonium* 1·0 to 3·0; *water*, *glycerine*, and *dextrine*, of each 10·0; *mix*, with gentle heat (Unna); or *ichthyol*, gr. x to  $\mathfrak{z}\text{j}$ , *lanolin*, *vaselin*, *zinc oxide*, *pulv. amyli.*  $\bar{a}\bar{a}$   $\mathfrak{z}\text{ij}$  (Ihle). *Ichthyol* may also be applied in the form of a super-fatted soap as a salve muslin, or in a glycerine jelly. The best formula for the latter is that of Unna: *Gelatine* 15·0, *zinc oxide* 10·0, *glycerine* 30·0, *water* 40·0.

To this 2 *per cent.* *sulpho-ichthyolate of ammonium* is added. Other substances, such as resorcin, tar, salicylic acid, etc., may be applied in the same excipient.

The results of scratching and inoculation of pus cocci must be dealt with on general principles, the leading indication being to make the parts thoroughly antiseptic. For this purpose a useful application is *boric acid ointment*, prepared as already described. Unna's *mercury carbolic* or *salicylic plaster mulls*, or *resorcin* in the form of ointment (2 to 10 *per cent.*), are also of service.



## CHAPTER VI

### AFFECTIONS OF THE SKIN DEPENDENT ON NERVE DISORDER (*continued*)

#### SENSORY NEUROSES OF THE SKIN

THE sensibility of the skin may be exaggerated, disordered, or abolished without any visible lesion to account for the subjective phenomena. When itching is present, secondary lesions produced by scratching can nearly always be seen; but these are the effect and not the cause of the sensory disturbance.

**Hyperæsthesia.**—Hyperæsthesia of the skin is met with in certain nervous affections; the excessive sensibility may be general, or may be limited to the area of distribution of a particular nerve. The increased keenness of the pain-sense is often accompanied by a greater or lesser degree of diminution of tactile sensibility. In hysteria the sensibility of the skin is often greatly exaggerated, a characteristic point being that the hyperæsthesia is very inconstant, both in position and in duration. This painful sensation is produced by light stroking rather than by firm pressure.

Actual neuralgic pain in the skin is not uncommon in locomotor ataxy, and sometimes it seems to be the result of cold. It is generally localised in hairy parts, and ruffling, or even touching, the hair sometimes causes much discomfort, of a character akin to the pain of so-called "muscular rheumatism." Spontaneous pain in the toes, followed by patchy red dis-

coloration of the skin, and aggravated by warmth, has been described by Weir-Mitchell under the name of *erythromelalgia*. The pain was so severe in the case which formed the basis of his description that the patient submitted to amputation of one of his toes. H. Batty Shaw found arterial changes present in the parts removed by amputation from three cases of erythromelalgia, and F. W. Weber<sup>1</sup> argues that there is no distinct boundary between this affection and Raynaud's disease.

**Meralgia paræsthetica.**—In this condition, first described by Bernhardt and Roth, abnormal sensations, such as tingling, formication, darting or dull aching pains, are felt in the skin of the outer lower two-thirds of the thigh, over an area strictly corresponding to the distribution of the cutaneous filaments of the external cutaneous femoral nerve. The affection is of rare occurrence, only some thirty-four cases having been reported up to 1905. In a typical case described by Professor White, of Boston, U.S.A.,<sup>2</sup> the morbid states with which it is said to be often associated—neuritis, tabes, rheumatism, gout, alcoholism—were absent, as also were all other disturbances, systemic or local, which might account for the neurosis. In some cases massage has given partial and temporary relief, but the affection appears to be beyond the control of remedies. I have seen three cases of this disorder; in one, the pains were increased by fatigue.

**Anæsthesia.**—Loss of sensibility depends on various central and peripheral nerve lesions, and, as a rule, lies beyond the province of the dermatologist. It is a prominent symptom of non-tuberculated leprosy, in which the absence of common sensibility is often associated with increased sensitiveness to cold. Owing to this, lepers frequently inflict on themselves severe burns by

<sup>1</sup> *Brit. Journ. Derm.*, vol. xvi., p. 71, Feb., 1904.

<sup>2</sup> *Trans. Amer. Derm. Assoc.*, 1905, p. 44.

pressing their hands and feet against the bars of the grate. Anæsthesia is sometimes a symptom of hysteria; in that case it is apt to shift about very suddenly from one part of the body to another.

**Pruritus.**—The term “pruritus” is not synonymous with itching in the language of dermatology. Itching is the general term which includes the particular variety pruritus. Itching may be caused by parasites, or by certain definite skin lesions; pruritus is itching without any visible cause to account for it. It is a true sensory neurosis due to some functional disorder of the related nerves independently of any source of irritation on the surface.<sup>1</sup> The symptom may be so mild as hardly to interfere with the patient’s comfort, or it may be so severe and persistent as to endanger his life from sleeplessness, or his reason from the nervous irritability which it causes. It is usually aggravated by errors of diet, by the warmth of the bed, and by mental excitement. The strongest will cannot keep the patient from seeking relief in scratching, and, as a matter of fact, the itching often ceases when excoriation has been produced.

Pruritus may be general or local. Of the former, three varieties are described—pruritus universalis, pruritus hiemalis, and pruritus senilis. In the first of these the itching, though affecting the whole body, is not felt all over the surface of the skin at one and the same time; it is, fortunately, also subject to remissions. The causes are mostly constitutional—gout, rheumatism, jaundice, and functional derangement of the liver,

<sup>1</sup> Bronson, in a paper on “The Sensation of Itching,” reprinted in “Selected Monographs on Dermatology,” New Sydenham Society, London, 1893, p. 299 *et seq.*, comes to a conclusion that “the disturbance in pruritus is of the nature of the dysæsthesia due to accumulated or obstructed nerve excitation with imperfect conduction of the generated force into correlated forms of nervous energy.”

diabetes, Bright's disease, cancer of the stomach or liver, dyspepsia, uterine diseases, and pregnancy. Many sufferers from universal pruritis are the subjects of lithæmia or oxaluria. The affection often begins in cold weather, but it is by no means confined to the winter. Pruritus hiemalis, on the other hand, according to Duhring, begins between October and January, and ceases about April or May. The itching generally affects the extensor surfaces of the limbs, especially the thighs, but the whole surface of the skin may be involved. The itching is worst on going to bed and on leaving it, probably owing to the sudden change of temperature in each case. During the day, when the patient's attention is otherwise engaged, he is but little troubled. In this form of pruritus, though the exciting cause seems to be cold, the patients are generally of gouty or rheumatic antecedents or inheritance. Many of them are of neurotic constitution, and are the subjects of hay fever. Others have a naturally dry and thick skin.

Pruritus senilis is probably the expression of senile changes in the skin. It begins usually after the age of sixty-five, and is extremely persistent. A remarkable feature of this form of pruritus is that scratching leaves little or no mark (Brocq).

The local varieties of pruritus affect the anus, the vulva, the scrotum, the nares, the palms of the hands, and the soles of the feet. In most cases some local cause of irritation will be found if carefully looked for. Thus pruritus ani may be due to hæmorrhoids, to the presence of scybala in the rectum, to ascarides, to fissures or ulcers, to discharges from the rectum, etc.; sometimes it appears to depend on dietetic errors, notably the abuse of coffee. Pruritus of the vulva may be caused by ovarian, uterine, or vaginal disease, and especially by the passage of large quantities of sugar in

the urine. It is often also a climacteric symptom. In young children pruritus may be due to the presence of ascarides in the rectum. Pruritus of the scrotum, apart from eczema or intertrigo, is rare; when present, however, it is a most distressing affection. The point of maximum intensity of the itching is the raphé (Brocq). Pruritus narium is generally a trivial affection; those subject to it are usually of gouty strain. The itching is sometimes brought on by the motion of a carriage. Pruritus palmarium et plantarum is very rare. The sufferers are mostly gouty. In women it is sometimes associated with uterine disorders. Bottstein<sup>1</sup> reports three cases of pruritus which he attributes to smoking. The affection is symmetrical, and is often extremely troublesome.

When pruritus is complained of, the first thing to be done is to exclude all possible sources of parasitic irritation—lice, bugs, fleas, *et hoc genus omne*. Nothing in this matter must be taken for granted; lice and itch are sometimes found in the most unexpected quarters. The situation of the scratches must be noted. If the shoulders are marked, especially in elderly people, the presence of pediculi must be suspected; if the wrists and interdigital spaces, the burrows of the *Acarus scabiei* must be very carefully looked for. In all cases of local pruritus the parts must be examined for the conditions that have been mentioned as often producing it. The urine must be examined and the constitutional state inquired into. It is a sound rule of practice, however, to fall back on general causes for pruritus only when minute investigation fails to reveal any local source of irritation.

In the **treatment** of pruritus the first indication is to discover and remove any local source of irritation. Silk, or the best merino-silk, underclothing

<sup>1</sup> *Monats. f. prakt. Derm.*, Nov. 15, 1904, p. 577.

should be substituted for flannel. In the intense itching about the anus, vulva, and meatus, that makes life a misery to some patients, careful examination will often reveal a definite focus of irritation recognised by the sufferer as the point from which the trouble starts: There may be nothing to see at the spot indicated; or slight localised congestion or a tiny excoriation may be visible. In such cases the application of menthol or cocaine will generally relieve the itching for a time. When milder measures fail the best plan is to destroy the focus of irritation. For many years I have been in the habit of destroying the point to which the source of irritation is referred by touching it with Paquelin's thermo-cautery. X-rays, high-frequency current and radium have all been used with success in severe old-standing cases of pruritus ani. Whenever itching about the genitals, especially about the orifice of the urethra, is complained of by a person of either sex, the urine should be examined for sugar. Irritation due to glycosuria may be relieved by the application of menthol, or the parts may be bathed with water as hot as can be borne, and after drying smeared with ichthyol ointment (10 per cent.). In other cases it may be found that the irritation is caused by ascarides, hæmorrhoids, or leucorrhœa. These various conditions must be treated with suitable remedies. Very common causes of local irritation are pediculi and itch-mites, the methods for detecting and destroying which are described elsewhere.

If no local cause can be discovered, general measures must be employed. The patient's diet must be carefully regulated, abstinence from coffee, tea, and sugar, in particular, being enjoined, and alcohol being absolutely forbidden. It will be well also if the patient can be induced to exclude shell-fish, pickles, and all highly seasoned, salted, or preserved food from his dietary;



white meats, green vegetables, and light milk puddings should form his bill of fare, and he should drink nothing but aerated waters. If there be any evidence or reasonable suspicion of gout, *salicylate of soda* should be given in the ordinary doses ; a combination of *calomel*, *guaiacum*, and *sulphurated antimony* in the form of Plummer's pill given at bedtime is also often of great service. Such cases are likely to derive benefit from a course of sulphur waters—particularly those of Harrogate (Old Sulphur Well), Strathpeffer, Schinznach, Aix-les-Bains, and Luchon. In senile pruritus, indifferent waters, such as those of Bath, Buxton, or Gastein, are more likely to be serviceable.

As regards internal medication—apart from the nerve tonics and sedatives that have been mentioned—*carbolic acid* and *cannabis indica* are the drugs most generally useful. Brocq speaks well of the former ; he gives it in pills containing from 5 to 10 *centigrammes of the acid combined with extract of gentian, and with digestive or anti-arthritic remedies* according to the indication. The amount of carbolic acid taken daily is from 20 to 60 *centigrammes* ; the pills are taken at the beginning of a meal, water, soup or food being swallowed immediately afterwards. Carbolic acid may also be given in *pills composed of absolute phenol gr. ij, glycerine m $\frac{1}{4}$ , powdered marsh-mallow gr. iij (to make one pill)* ; or in *perles* of carbolic oil, each containing *gr. j of carbolic acid*. *Cannabis indica* is particularly recommended by Bulkley in senile pruritus ; he begins with 10 *minims of the tincture, usually increased by degrees to 20 or even 30, three times a day*. The drug should be given largely diluted, and its effect should be watched. The same writer also speaks well of a combination of *tincture of gelsemium and tincture of nux vomica*. *Ichthyol* is often an efficient remedy ; it may be given in doses of *gr. ijss in the form of capsule, tabloid, or coated pill*. *Digitalis*



and *ergot* are both occasionally of service. *Antipyrin* in doses of 10 to 15 grains is sometimes very useful, but its action is uncertain. The subcutaneous injection of *nitrate of pilocarpin* (gr.  $\frac{1}{10}$ ), once a day, is often of the greatest service.

As a rule, however, itching can be relieved only by external remedies. When pruritus is general, Turkish baths often give great relief, owing to their diaphoretic action and the thorough removal of effete epidermic material which results. Continuous emollient or alkaline baths are also most useful. The former may consist of bran 2 to 6 lb., potato starch 1 lb., or linseed 1 lb. in 30 gallons of water; the latter, of bicarbonate of soda  $\mathfrak{z}$ ij to  $\mathfrak{z}$ x, or carbonate of potash  $\mathfrak{z}$ ij to  $\mathfrak{z}$ vj, or borax  $\mathfrak{z}$ iiij, in the same quantity of water. I have kept a highly neurotic patient affected with intense itching in a bran bath for several days almost continuously in comparative comfort. An excellent bath for lessening the sensitiveness of the skin is made by mixing  $\mathfrak{z}$ ij of sulphurated potash with 30 gallons of water. All these baths should be taken warm, and the skin may afterwards be rubbed with the lather of medicated soap or smeared with an ointment. Beginning with the simplest and most generally available remedies, an excellent application is plain hot water. A sponge dipped in this and partly squeezed out should frequently be firmly pressed on the itching part at short intervals. This method is particularly useful in itching of the anus and scrotum. When other applications are employed, it is a good plan always to bathe the parts with hot water before putting on a fresh dressing. The application of a cooling lotion or ointment gives more relief if preceded by the local use of hot water as described; indeed, sudden alternations of heat and cold are of themselves useful in relieving itching. Simple evaporating lotions hardly ever fail to afford temporary relief; they should

be applied by means of pieces of linen or lint kept constantly wetted with the solution. A good evaporating lotion may be made by mixing ordinary vinegar with an equal quantity of water. A better application consists of *equal parts of eau-de-cologne or spiritus ammoniæ aromaticus and water*. An excellent anti-pruritic lotion is *liquor plumbi subacetatis ℥ij to ℥iv, distilled water to ℥viij, or ℥j of the solution of the subacetate in ℥ij of fresh milk*.

Alkaline lotions are also useful; they should be applied after the part has been washed and dried. Among such lotions must be mentioned the following: *Borax ℥ij, glycerine ℥ss, water 1 quart; carbonate of potash ℥ij, water ℥viij; bicarbonate of soda ℥j or ℥ij, glycerine ℥jss, elder-flower water ℥vj*.

One of the most effectual local agents is *carbolic acid*, which may be used in a *watery solution* (*gr. ij to iv ad ℥j*) or in the form of a *lotion composed of ℥j of the acid and ℥ij of pure glycerine, with water to ℥viij*, or as a *liniment containing 1 part of carbolic acid in 19 of olive oil*. The following is a useful lotion: *Acid. carbol. ℥j, glycerin. pur. ℥ij, sp. vini rect. ℥iij, aq. camph. ℥v*. Compresses soaked in these lotions should be applied every hour or two. Carbolic acid may be combined with cocaine in an ointment or a lotion. A useful formula for the former is *acid. carbol. ℥xx, hydrochlorate of cocaine gr. x, vaseline ℥j*; and for the latter, *acid. carbol. ℥ss, cocaine ℥ss, aq. laurocerasi ℥j, aq. rosæ ℥ij*. These should be applied several times a day. Carbolic acid may also be advantageously combined with mercury in an ointment as follows: *Hyd. perchl. gr. ij to v, acid. carbol. ℥xx, ol. olivæ ℥j, benzoated oxide of zinc ointment ℥j*. Brocq's *carbolic pomade, consisting of gr. xv of carbolic acid, 5 drachms of lard, and 10 drachms of lanolin*, is an excellent application. He recommends that after it has been applied the parts should be well dusted with starch powder.

Among local applications one of the most valuable is *menthol*, which leaves the parts numb and cold for some time, to the great comfort of the patient. This may be applied either by rubbing the affected surface with the solid cone previously wetted with alcohol or water or, better, in a solution of 5 to 10 grains in one ounce of dilute alcohol. It may also conveniently be used in the form of soap. Menthol and eucalyptol soap is particularly useful. The refreshing coolness caused by menthol is, however, often replaced after a time by heat, tingling, and even slight pain, somewhat resembling the re-establishment of the circulation after partial frost-bite.

Another most useful anti-pruritic remedy is *cocaine*, which can be used either alone or combined with almost any other substance. The most convenient form for general use is in an ointment with lano-vaseline or boric acid ointment as a base. In pruritus ani a half-grain suppository of cocaine will usually give relief.

*Chloroform* is also serviceable in allaying itching. It may be employed in the form of an ointment containing ℥j to ℥vj of *lanolin*, or as a lotion of ℥xv to ℥iv of *distilled water*, and put into an eight-ounce bottle, so that it can be thoroughly shaken up before use.

*Chloral* is also beneficial as a local application; a solution of the drug in spirit or eau-de-cologne may be sprayed on the affected part after it has been exposed for some time to hot steam and then dried. Equal parts of chloral and camphor rubbed up together make a good anti-pruritic application.

*Hydrocyanic acid* is, in my opinion, much over-rated as an anti-pruritic. It may be used in the form of a lotion containing ℥ij of *dilute hydrocyanic acid*, ℥j of *borax*, ℥vii of *rose-water*; or ℥jss of *hydrocyanic acid*, solution of *acetate of ammonia* ℥j, with *rose-water* to ℥viij. A much used lotion is the following, recommended by

the late Mr. Startin : *Borax*, carbonate of ammonia, of each  $\mathfrak{zjss}$ , glycerine  $\mathfrak{zj}$ , dilute hydrocyanic acid  $\mathfrak{ziiij}$ , water  $\mathfrak{zxxvj}$  ; to be used diluted 1 to 4 times.

*Salicylic acid* can be applied diluted with glycerine or alcohol, or as an ointment containing gr. x to xv of the acid, vaseline and carbonate of zinc of each  $\mathfrak{zj}$ , and cold cream to  $\mathfrak{zj}$ .

*Mercurial applications* are extremely valuable. Among them may be mentioned black wash, which may be used either alone or in a vehicle of mucilage of tragacanth, as follows : *Lot. nigræ*, liq. calcis,  $\mathfrak{aa}$   $\mathfrak{ziv}$ , mucilag. tragacanth.  $\mathfrak{zj}$ . The following is an excellent application : *Hyd. perchlor.* gr. v., *sp. rosmar.*, *sp. vin. rect.*,  $\mathfrak{aa}$   $\mathfrak{zj}$ , *emuls. amygdal. amar.*  $\mathfrak{zviij}$ . A useful lotion may also be prepared as follows : *Hyd. perchlor.* gr. ij, glycerine  $\mathfrak{zss}$ , *aq. chloroformi ad*  $\mathfrak{zviij}$ . Citrine ointment freely diluted is often of service in pruritus senilis. Mercury may be combined with hydrocyanic acid, as in the following formula :  $\mathfrak{R}$  Dilute hydrocyanic acid  $\mathfrak{zj}$ , corrosive sublimate gr. j, elder-flower water  $\mathfrak{zvj}$ .

The most convenient form of applying tar is the *liquor picis carbonis*, which may be used diluted with water or spirit to the proportion of 1 in 4 or weaker ; or combined with solution of subacetate of lead, one or two drachms of each in  $\mathfrak{zviij}$  of rose-water. *Lotio picis carbonis* may also be used with calamine lotion as a vehicle ( $\mathfrak{zj}$  of the former to  $\mathfrak{zviij}$  of the latter). *Liquor rusci detergens*, a solution of oleum rusci in spirit, can be used in the same way as lotio carbonis detergens. Tar may also be applied in the form of ointment as follows :  $\mathfrak{R}$  *Ol. russi*  $\mathfrak{zj}$ , camphoræ gr. x, adipis  $\mathfrak{zj}$  ; or in pastes.

Naphthol is useful in the form of a soap or as an ointment, prepared as follows : *Naphthol-β* gr. xx, lanolini  $\mathfrak{zij}$ , ung. simpl.  $\mathfrak{zj}$ .

Nitrate of silver in solution (gr. v to xv in  $\mathfrak{zj}$  of water or spiritus ætheris nitrosi) often gives relief. Benzoin

in the form of compound tincture painted on with a camel-hair brush, or a solution of benzoic acid ℥ij in ℥viiij of diluted alcohol, applied by means of compresses, is also useful.

*Ichthyol* may almost always be used with advantage. It is well to begin with a weak solution, such as 1 in 16 parts of water, and gradually increase the strength up to equal parts. The effect is often increased by the addition of a small quantity of precipitated sulphur. *Ichthyol* may also be applied in ointment soap, or salve-mull.

*Aconitine* was successful in the hands of Sir Thomas Watson,<sup>1</sup> and I have not unfrequently had reason to be satisfied with the effect of unguentum aconitinæ, which leaves a numbness very agreeable to patients.

According to a large majority of authors, localised pruritus is often amenable to the X-rays, but the same cannot be said of generalised pruritus.

In conclusion, a word of warning in regard to the choice of a remedy to commence with may not be out of place. If the skin be greatly inflamed and excoriated, or if any eczematoid lesions have been produced by scratching, it will be well to begin local treatment with *ichthyol*, which does not irritate, but, on the contrary, has a marked sedative effect. Spirituous solutions or sprays should never be applied when the skin is broken, as they cause considerable smarting and thus intensify the mischief.

**Prurigo**,<sup>2</sup> though looked upon by Hutchinson as merely "a peculiar irritability in which a variety of causes may evoke the symptoms to which that name

<sup>1</sup> "Principles and Practice of Physic," 4th edition (London, 1857), vol. ii., p. 928.

<sup>2</sup> For a discussion of the character of this affection, by Besnier, White, Payne, Neisser, and others, *vide Trans. of the III. Internat. Dermat. Congress*, London, 1896.

has been given,"<sup>1</sup> is, in my opinion, entitled to a place in nosology as a distinct clinical entity. The characteristic lesion is an eruption of discrete slightly raised papules; these are at first of the same colour as the skin, but afterwards, when subjected to irritation by scratching, they become reddened and increase in size. There is often a blood-crust at the top. The papules are most abundant on the extensor surfaces of the limbs, but they also occur on the chest (back and front), the lower part of the belly, the sacral region, and the buttocks. They are rarely seen on the flexor aspects of limbs, and they occur sparsely on the face. The itching is intense, and secondary changes in the skin, produced by scratching, are very marked. Besides these, other lesions often develop, which may resemble those of eczema (except that the flexor surfaces are generally spared) or of urticaria. Pustules and sores, often accompanied by considerable enlargement of the femoral and axillary glands, are not infrequent. In a severe type of prurigo (called by Hebra *prurigo ferox*, to distinguish it from the *prurigo mitis* of Willan, which is the ordinary form of the disease) the elementary lesions are more developed and more numerous, and the skin in certain parts, notably the legs and forearms, gives a sensation to the touch like coarse brown paper or a nutmeg-grater (Crocker). Poverty and insanitary conditions of life are predisposing causes, and males are more often affected than females. Prurigo generally begins in the first year of life.<sup>2</sup> After a time, however, the wheals

<sup>1</sup> "The Pedigree of Disease," p. 61.

<sup>2</sup> Vidal ("Considérations sur le Prurigo de Hebra," *Ann. de Derm. et de Syph.*, Sept.-Oct., 1892) says that, like Besnier and the majority of French dermatologists, he has seen the affection begin between the ages of ten and fifteen, and even later. In one of his patients the first symptoms of the disease showed themselves at the age of thirty-five. In nine cases cited by Ehlers (*Bull. de la Soc. Française de Derm. et de Syph.*, 1892)



decrease both in size and in number, the eruption meanwhile assuming a papular character, which it retains. The affection, unless treated in the very early stage, generally lasts the whole of the patient's life, becoming better or worse, however, under the influence of season, the state of the health, etc.

The **pathology** of prurigo is obscure. It has been considered to be a neurosis of the skin expressing itself through the medium of the vaso-motor apparatus in an inflammatory process. But Bernhardt, arguing from data yielded by the case referred to in the footnote, concludes that it is a tropho-neurosis, the result of a chronic irritation of the trophic centre, and belonging to the group of dystrophies of the corium, and that most probably the pruritus is secondary to the papule. Dr. Wilfrid Warde,<sup>1</sup> under the name of *prurigo simplex chronicus* (Brocq), describes two cases of Unna's, a mother and daughter, in both of which there was evidence that at a very early period the skin was not normal. The eruption appeared at important developmental epochs, in the one case at child-bearing, in the other at menstruation. He regards it as "practically certain" that in these cases the true cause was a local change, brought about possibly by general conditions, and his "strong impression" is that the eruption depended largely on a retention of fat, which underwent decomposition or other changes. The changes secondary to the inflammatory process in prurigo may be summed up as consisting of what French writers call "lichenisation": the skin gradually becomes hypertrophied and indurated as the result of chronic inflammation. The **diagnosis** is made partly by a process of exclusion, partly by the sum of the affection commenced between fifteen and thirty years of age. In a case reported by Bernhardt (*Arch. f. Derm. u. Syph.*, 1901, p. 173) it began at the age of eight.

<sup>1</sup> *Brit. Journ. Derm.*, Feb., 1902, p. 43.



the clinical facts. Other itching conditions, such as scabies, pediculosis, etc., are excluded by the absence of the characteristic lesions. The positive characters are that the disease dates from infancy, and that it appears in the form of a papular eruption which affects chiefly the extensor surfaces of limbs. A pathognomonic feature is the nutmeg-grater-like feeling of the skin on the outer side of the legs and forearms. The glandular enlargement, which in the groin often attains a very large size, is another distinctive feature.

The disease can, as a rule, be cured only in the very earliest stage—that is to say, in childhood, before it has become inveterate. As already said, however, it is subject to spontaneous remissions, and it can always be greatly mitigated by **treatment**. This must be conducted on the lines laid down for pruritus. In addition to the internal and external remedies for itching already described in detail, a liberal supply of nutritious food is always of the greatest importance, especially in the case of children. Of the various local applications, *strong tar* in lotion or ointment is the most generally useful. Systematic bathing and massage may also be recommended. *Cod-liver oil and iron* may be given in most cases with advantage.

## CHAPTER VII

### AFFECTIONS OF THE SKIN DEPENDENT ON NERVE DISORDER (*continued*)

#### ANGIO-NEUROSES

**Urticaria.**—The characteristic lesion of urticaria is a wheal or raised patch of skin flattened on the surface, firm to the touch, and at first uniformly red in colour, but afterwards white and bloodless in the centre, with a bright red border, which often has an areola of erythematous redness outside it. Sometimes, however, the patch remains red throughout. When the wheal subsides the centre becomes red and the border pale. When wheals are numerous their areolæ become confluent, so that the white centres stand out boldly on a red ground. Wheals vary in size from a threepenny piece or smaller to a florin or even a four-shilling piece. The lesion is seen in its most typical form in the wheal which is caused by the stinging nettle, whence the name “urticaria” (*urtica*, nettle) or nettle-rash.

Urticaria comes on quite suddenly, the appearance of the eruption being accompanied by intense itching and burning. Scratching gives some momentary relief, but is followed by the development of large numbers of fresh wheals, which spring up, so to speak, under the patient's fingers, or may arise at a distance. Sometimes the affection is purely local, but in severe cases the skin eruption is usually associated with some systemic disturbance. The individual wheals last only a few hours at most, and disappear, leaving no trace of their presence.

Fresh crops, however, may continue to appear, and the attack may last for some days. In some cases the eruption comes out in successive crops day after day, for weeks or months or even years.<sup>1</sup> To this form of urticaria the term "chronic" is usually applied; but as there is no difference in respect of the severity of the local symptoms between it and the more common short-lived variety (*urticaria fugax*) which has already been described, it would be more logical to call it *urticaria perstans*. In certain cases not only the duration of the disease but that of the individual wheal is considerably prolonged. Cases of this kind have been reported in which wheals on the limbs, the back, and the belly, varying in size from a lentil to a haricot bean, persisted for three months.<sup>2</sup> Hartmann<sup>3</sup> describes seven cases of urticaria perstans in which the leading symptoms were itching and a papular eruption with excoriations, with no evidence that the lesions had begun as ordinary wheals.

Urticaria may attack any part of the cutaneous surface, and sometimes invades the mucous membranes of the mouth, tongue, pharynx, possibly of the bronchi and stomach (Pringle). This probably affords an explanation of its frequent association with asthma, the same causes determining an attack of both affections. The wheals have no definite arrangement, and are never symmetrical. There may be only a few on some particular part of the body, or they may cover nearly the whole of its surface. A striking feature of urticaria when it has obtained a hold on the patient is that the slightest contact with the clothing or the least scratch will at once bring out a crop of wheals on any part of the skin; even when the rash is not present the patient can

<sup>1</sup> Dubreuilh: *Gaz. des Hôp.*, October 22, 1892.

<sup>2</sup> C. Boeck: *Norsk Magazin for Laeg.*, 1888.

<sup>3</sup> *Arch. f. Derm. u. Syph.*, March, 1903.

often write his name with his finger-nails on apparently healthy parts of his skin, especially on the back (*urticaria factitia*).<sup>1</sup>

Several varieties of urticaria have been described, according to the size, configuration, and structural peculiarities of the characteristic lesions. Thus the wheals may be small and on their subsidence leave papules. Hence the name *urticaria papulosa*. It is to Colcott Fox that we owe the proof of the urticarial nature of these lesions and their identification with the lichen urticatus of Bateman and the lichen strophulus of Rayer and Bielt.<sup>2</sup> *Urticaria papulosa* is chiefly met with in children. The wheals are, as a rule, no larger than a lentil, and on the top of each is a tiny red point or inflammatory papule, which is usually covered with a darkish scab, the result of scratching. If the red papule is not at first visible, it can always be brought into view by pressure, when the colour fades from the circumference of the papule, leaving a minute red spot in the middle. The eruption affects all parts of the body, but shows a certain preference for the trunk. It is sometimes markedly vesicular in character, closely simulating varicella.<sup>3</sup> Fresh crops of lesions come out at night, and cause such intense itching that sleep is impossible. I have seen some cases in which the general symptoms were very severe. The disease may last for several years, becoming milder or practically remitting in winter, and returning with the warmer weather, or *vice versa*. *Urticaria papulosa* may be looked upon as

<sup>1</sup> This condition has been thoroughly studied by Barthélemy in his "Étude sur le Dermographisme," vol. i., Paris, 1893. See also the case of a "Femme Autographique" (Kaposi, translated by Besnier and Doyon, pp. 407-8).

<sup>2</sup> Colcott Fox: "Urticaria of Infancy and Childhood," *Brit. Journ. Derm.*, May, 1890.

<sup>3</sup> Colcott Fox: *Brit. Journ. Derm.*, 1899, p. 157.

a connecting link between urticaria and prurigo. I agree with Colcott Fox in thinking that its actual transition into prurigo, if it ever occurs, is extremely rare.

When ordinary urticaria attacks parts like the eyelids, scrotum, etc., where there is much loose connective tissue which offers comparatively little resistance to the diffusion of the infiltration, it is termed *urticaria œdematosa*. The œdema as a rule comes on suddenly, to the great alarm of the patient, especially when mucous membranes such as those of the tongue and throat are involved; but it seldom lasts longer than twenty-four hours. Alcoholism and neurotic inheritance seem to be predisposing causes.<sup>1</sup> The condition sometimes occurs independently of urticaria in the form of circumscribed swellings of varying consistency, which develop in the loose tissue of the scrotum, penis, and eyelids; it is also seen in the hands and feet, and on the forehead. To this condition the name of *angio-neurotic œdema* has been given. The exciting causes are the same as in urticaria, from which the affection differs in the fact that its seat is not the skin, but the subcutaneous tissue. The attack generally subsides under treatment, but there is great liability to recurrence.<sup>2</sup>

*Urticaria gigas* is a form of the disease characterised by the development of patches of localised œdema of large size. They are hard to the touch, like the biceps muscle when strongly contracted. There is usually no redness of the surface, and itching is seldom complained of. The swellings last a day or two, and subside as quickly as they came. The disease is often described as the acute circumscribed œdema of Quincke.

<sup>1</sup> See report of a case of acute circumscribed œdema of the skin in an alcoholic subject, by Oppenheimer (*Deutsch. med. Woch.*, No. 3, 1896).

<sup>2</sup> For abstract of seven cases reported by Onopowicz and Baruch, see *Brit. Journ. Derm.*, 1899, p. 405

When effusion of blood takes place into the wheals, the condition is termed *urticaria hæmorrhagica* or *purpura urticans*; when bullæ form on the surface, it is spoken of as *urticaria bullosa*. *Urticaria pigmentosa* presents sufficiently marked characteristics of its own to require separate description.

The **causes** of urticaria may be classified as predisposing, external, and internal. Among *predisposing* causes are sex—females being considerably more liable to the affection than males; age—infants, owing to the irritability of their skin, being particularly prone to nettle-rash; the neurotic temperament; indigestion; gout; functional and organic disease of other organs, notably the uterus and ovaries, and of the nervous system. In infants urticaria is often associated with rickets and dilatation of the stomach.<sup>1</sup> Malaria is so strong a predisposing cause that some writers make a special variety of the affection, under the name of “paludal urticaria.” Urticaria is often associated with jaundice, rheumatism, purpura, and occasionally co-exists with albuminuria and glycosuria. Violent mental emotion may be sufficient of itself to bring on an attack. Among *external* causes are local irritants, such as the stings of nettles, jelly-fish, or wasps; the bites of insects, such as bugs, mosquitoes, etc.; contact with or even proximity to certain hairy caterpillars; the direct application of cold to the skin, and especially sudden alternations of temperature.<sup>2</sup> S. B. Ward<sup>3</sup> records a case—that of a woman of forty-seven—in which urticaria was caused only by exposure to the sun’s rays. Exposure to the heat of a fire or to X-rays had no such effect.

Among *internal* causes are certain articles of food

<sup>1</sup> Funk and Grundzach: *Monats. f. prakt. Derm.*, February, 1894.

<sup>2</sup> Crocker: “Diseases of the Skin,” 3rd edition, p. 126.

<sup>3</sup> *N.Y. Med. Journ.* and *Phila. Med. Journ.*, April 15, 1905, p. 742.

which irritate the alimentary canal and reflexly the skin (through the pneumogastric nerve). Every variety of idiosyncrasy is displayed by patients in this respect; but to shell-fish, especially mussels, crabs, and lobsters, must be assigned the chief place among dietetic irritants. Among other substances which cause urticaria in certain individuals may be mentioned pork, almonds, strawberries, parsley, mushrooms, and oatmeal. Certain medicinal substances also give rise to it. These are dealt with in the chapter on "Artificial Eruptions" (see p. 220). Among the internal causes of the affection should also be mentioned the presence of hydatid cysts, and especially of their fluid contents, in the abdominal cavity; and worms. In a case of Winkelried Williams's<sup>1</sup> urticaria gigas appeared to be due to absorption of toxins from a chronic otorrhœa.

**Pathologically,** urticaria is held by Philippon, as the result of experiment, to be due to the action of irritants either directly on the walls of the blood vessels or by circulating in the blood, and this conclusion finds support in the experiments of Török and Hári.<sup>2</sup> Another view is that the affection is a result of reflex vaso-motor disturbance. Sir Stephen Mackenzie places the nervous centre of the reflex mechanism in the dense plexus of fine nerve fibres in the superficial layer of the corium. The wheal is simply a circumscribed œdema of the skin due to paralytic dilatation of the arterioles, followed by exudation of serum and migration of leucocytes. According to Neisser,<sup>3</sup> the process consists of an increased secretion of lymph in the neighbourhood of the capillaries of the skin; this in its turn causes compression of the vessels, a fact which explains the white centre of the wheal. The variations in the size and other

<sup>1</sup> *Brit. Journ. Derm.*, vol. ix., p. 12, Jan., 1907.

<sup>2</sup> *Arch. f. Derm. u. Syph.*, April, 1903.

<sup>3</sup> *Verhandlungen deutsch. dermatol. Gesellsch.*, 1889, p. 253.



characters of the wheal are due to the different depths to which the infiltration penetrates. In ordinary urticaria only the upper layer of the integument is affected, while in urticaria gigas the whole thickness of the skin is involved, and in the œdematous variety infiltration takes place into the loose meshes of the subcutaneous areolar tissue.

The **diagnosis** of urticaria, as a rule, presents no difficulty, the sudden onset, the presence of wheals, and the fugitive nature of the eruption being the characteristics of the disease. In certain cases, however, in which the wheal is surmounted by vesicles or bullæ, urticaria may for a time simulate pemphigus, or the first stage of dermatitis herpetiformis; and if the constitutional symptoms are well marked, the rash may at first be mistaken for that of scarlet fever, or even for erysipelas. The course of the eruption, however, soon reveals the true nature of the affection. Urticaria papulosa is frequently confounded with scabies, but the distribution of the lesions on the trunk and the absence of the characteristic burrows are sufficient to exclude that disease.

The prognosis is always favourable, although, as has been said, in some rare cases the duration of the disease may be more or less prolonged.

**Urticaria pigmentosa.**—Urticaria pigmentosa is usually classed among the angio-neuroses, but, on account of the very special character of the exudation which accompanies it, it is doubtful whether it is properly placed in this category. The affection usually begins very soon—often a few days—after birth, more than half the cases arising before the age of six months is attained; but Graham Little,<sup>1</sup> in a careful study based upon all the cases which he found recorded up

<sup>1</sup> *Brit. Journ. Derm.*, Oct., Nov., Dec., 1905, and Jan., 1906.

to the end of 1905, shows that it occasionally appears after puberty. In a case of a woman I showed at the Dermatological Society of London the disease began at the age of thirty-eight. The essential feature is the appearance of raised patches somewhat conical in shape and red or pink in colour; these afterwards become flattened on the top, and their hue deepens gradually to dark brown. In a case under the care of Mitchell Bruce and Galloway, which was carefully studied by H. R. G. J. Brongersma,<sup>1</sup> superficial scarring was noted in the centre of the patches; this feature in the lesions of the disease had previously been reported by Hallopeau to the French Dermatological Society on May 12, 1892. The individual lesions do not disappear like the wheals of ordinary urticaria, but persist, while others come out in successive crops. When the disease is fully developed the child is spotted with more or less prominent patches varying in size from a split pea to a sixpenny-piece, and in colour from bright red to dark brown, according to the age of the wheal. The parts usually affected are the front and sides of the chest, the back, the belly, and the limbs; the face is not always spared, nor is the buccal mucous membrane. The disease is usually markedly symmetrical, in contrast with ordinary urticaria, a point illustrated in a remarkable manner in a case shown by me at the Clinical Society.

At varying intervals, especially in summer, the morbid process seems to be quickened into fresh activity. At such times the patches become intensely congested. Vesicles and bullæ may develop on their surface, and new lesions appear on parts of the skin previously healthy. These phenomena are accompanied by intolerable itching, and the scratching which is the result adds fuel to the fire. In some cases the raised red

<sup>1</sup> *Brit. Journ. Derm.*, May, 1899.

patches predominate; in others the flattened pigmented lesions. Usually the two forms, which, as already said, represent different stages of the same process, co-exist in varying proportions.

Two collateral symptoms usually found associated with urticaria pigmentosa, according to Graham Little,<sup>1</sup> are general enlargement of the glands, not proceeding, however, to suppuration and a condition of the unaffected skin, styled by French writers dermographism, in which artificial wheals may easily be produced by scratching.

The natural tendency of the disease is to disappear as the patient grows older. Three well-defined stages can be recognised in the large majority of cases. There is a period of activity, during which successive crops of the eruption continue to appear. This lasts about a year, occasionally longer. Next follows a period lasting from two to five years, during which the disease is more or less stationary. Lastly, there is a period of retrogression, during which the spots gradually fade away, though complete disappearance of the pigmentation is rare. This retrogressive period may last several years.

Urticaria pigmentosa is believed by most dermatologists to be essentially a form of vaso-motor disturbance, with the special feature that the local infiltration, which gives rise to the distinctive lesions, is largely made up of the cells called by Ehrlich *Mastzellen*. These cells exist in such large numbers in the pigmented spots that sections especially stained for their recognition assume a reddish colour owing to the reaction given by the mast cell to granules.<sup>2</sup> In the case of a child suffering from urticaria pigmentosa, Gilchrist<sup>3</sup> showed by

<sup>1</sup> *Loc. cit.*

<sup>2</sup> Unna: "Histopathology of the Diseases of the Skin," p. 955. Trans. by Norman Walker (Edinburgh, 1896).

<sup>3</sup> *Johns Hopkins Bull.*, vol. vii., July, 1896.

experiment that in the skin which appeared normal, as well as in the lesions, mast cells were present in considerable numbers. Brongersma is of opinion that the prime cause of the disease is not a congenital increase of the vaso-motor irritability of the skin, but "a congenital increased tendency for the connective tissue to change into mast cells," the urticarial wheal being a secondary symptom. He thinks it possible that mast cell granules which are seen lying free in the lymph spaces are degenerative products, and that, gaining access to the blood, they act as a toxin which is capable of producing the changes in the superficial circulation which give rise to the urticaria. Darier claims that Ranvier has demonstrated that the mast cells are not altered connective-tissue cells, but are derived from the blood.

The clinical diagnosis of the condition rests chiefly on the appearance and mode of evolution of the wheal-like patches and the persistence of their pigmentation.

In the **treatment** of **urticaria** the first thing to be done is to discover and, if possible, remove the cause (errors of diet, especially shell-fish, worms, parasites, or other source of reflex irritation). If the attack is distinctly traceable to indigestion, or to poisoning by mussels, etc., an emetic should be given if the symptoms are very severe; in milder cases a smart saline purge will cleanse the intestinal canal of the toxins which are the cause of the trouble. The patient should be kept on a bland, unirritating diet for a few days, if fever be present; and, especially if the urticaria be of malarial origin, quinine in full doses may be given with advantage. If there be any reason to suspect a gouty element in the case, it must be dealt with on general principles, alkalies being particularly useful. Sir A. E. Wright, who calls urticaria "a serous hæmorrhage," recommends *calcium chloride in doses of gr. xx three times a day*. The

itching may be allayed by means of any of the local applications recommended for the treatment of pruritus, simple evaporating lotions generally being sufficient for the purpose. Brocq recommends that the patient's body-linen should be impregnated with starch powder, and that he should sleep in fine sheets sprinkled with the same material. It is most important to prevent chill. For this reason it is well, whenever the patient will submit to such a course, to keep him in bed. I have known patients derive benefit from exchanging a flannel for a linen nightdress. Excessive heat should also be avoided. The clothing should be light, and the underclothing especially should not be of such a nature as to cause irritation of the skin. The effects of scratching must be dealt with as already indicated.

In chronic cases the bowels must be carefully regulated, and any constitutional state that may appear to be associated with the skin affection should be treated on general principles. *Quinine* is very often beneficial. All food of a stimulating character, and alcohol in any form, must be avoided. When these general measures prove unavailing, an attempt may be made to act directly on the vaso-motor centres by means of *sulphate of atropia*, which may be given internally as a pill, containing gr.  $\frac{1}{200}$  to gr.  $\frac{1}{100}$ , with sugar of milk and glycerine of tragacanth. This pill should be given at night. The drug may also be administered by subcutaneous injection (gr.  $\frac{1}{150}$ , very cautiously increased). *Ichthyol* in gradually increasing doses is one of the best drugs at our disposal. Chronic urticaria which has resisted all medical treatment is often cured by the rest and freedom from worry given by a holiday. A sea voyage is efficacious when other means fail.

For **urticaria pigmentosa** various kinds of **treatment** have been tried, without producing any appreciable modification of the morbid process. *Bella-*

*donna* internally, and *atropine* in hypodermic injections, have been recommended; but the clinical evidence at present available is insufficient to warrant a definitive judgment as to the efficacy of this method. The itching may be relieved by the measures that are found useful in ordinary urticaria. Apart from this, the principal indication is to build up the general health on as solid a foundation as possible.

## CHAPTER VIII

### AFFECTIONS OF THE SKIN DEPENDENT ON NERVE DISORDER (*continued*)

ERYTHEMA—PURPURA—PURPURA, OR PELIOSIS, RHEUMATICA — LUPUS ERYTHEMATOSUS — ROSACEA — PELLAGRA—ACRODYNIA

**Erythema.**—Erythema strictly means nothing more than superficial redness, disappearing on pressure; that is to say, a *local congestion* of the skin. A good deal of confusion as to the nature of the affection has been caused by the fact that different stages of the same process have been described as distinct diseases, and a further element of perplexity has been imported into the subject by classifying the rashes of infectious diseases as varieties of erythema. Erythematous they doubtless are anatomically, but they have no independent existence as pathological processes, and it is illogical to consider them apart from the diseases of which they are manifestations. The eruption of an infectious fever is, in fact, the result of the irritation of certain specific poisonous matters circulating in the blood. The eruptions caused by certain drugs, which are often erythematous in appearance, are the result either of a toxic action of the chemical substance on the nerve centres, or of direct irritation of the peripheral ends of the nerves supplying the integument. These will also be dealt with in Chapter XI. (Artificial Eruptions).

Erythema, as a substantive disease, shows itself under



various forms, all of which may, however, be grouped under two heads, viz. (a) *hyperæmic*, (b) *inflammatory*. In the former category the mechanism of the process consists in localised vascular disturbance, which gives rise to hyperæmia—at first active, but, if the cause persists, soon becoming passive owing to vaso-motor paralysis. The colour of the affected area of skin, which at the outset is bright scarlet, changes as the blood stream becomes more sluggish to dull red, deepening as the tendency to stagnation increases to livid blue or purple. In correspondence with the variations in the blood current, the skin at first feels hot both to the patient and to the observer; but the heat subsides as the congestion assumes a passive character, and often, especially in the extremities, the local temperature falls below the normal point. In erythema of the *inflammatory* type the retardation of the blood current goes on to stasis, exudation of serum takes place, leucocytes escape into the tissues around the vessels, and sometimes subcutaneous hæmorrhages occur. In this way the various lesions—vesicles, bullæ, œdema, and pigmentation—seen *e.g.* in erythema multiforme, are produced. If the inflammatory process is severe it gives rise to more serious lesions, such as local asphyxia, ulceration, sloughing, and even gangrene. Widely different as the hyperæmic and inflammatory forms of erythema are in their clinical aspects, pathologically no definite boundary line can be drawn between them.

With regard to the **etiology** of erythema, individual predisposition is a necessary condition of its development. This predisposition appears to be simply an exceptional instability of the vaso-motor system, rendering it unduly susceptible to irritation. The irritation may be direct, as by the action of cold or heat, acrid discharges, certain vegetable or chemical substances (*rhus toxicodendron*, mustard, arsenic, etc.), the bites or stings

or mere contact of certain insects (fleas, bugs, hairy caterpillars), coarse flannel or dirty underclothing; or indirect—*i.e.* reflected to the nerves of the skin from internal organs, more particularly the organs of digestion and the female genital apparatus. It is also sometimes a manifestation of the rheumatic or gouty poison. Sometimes, too, it is the result of intestinal toxæmia. Thus Galloway has shown that cutaneous manifestations of the erythematous type occur in diseases of the liver, especially in cases in which the portal blood passes into the general, and therefore the cutaneous, circulation without having been subjected to the purifying action which it is the office of that organ to exert.<sup>1</sup> It is not always possible, however, to trace an attack of erythema to any distinct cause; in such cases, no doubt, sources of irritation of one or other of the kinds just mentioned are present if only they could be found.

#### HYPERÆMIC ERYTHEMA

Of the hyperæmic type of erythema there are several varieties.

**Erythema simplex** is characterised by patches of redness, at first scarlet, afterwards pinkish in hue. These may come out on any part of the cutaneous surface, showing a preference, however, for the face and portions of the skin which are in contact with each other or exposed to the air. The affected parts feel hot to the hand, and the patient complains of a sensation of burning or itching; but there is seldom any fever or systemic disturbance. The redness gradually fades and finally disappears, leaving no discoloration behind. Slight desquamation often accompanies the subsidence of the eruption. The affection may last an indefinite time. The diagnosis, as a rule, presents no difficulty. Erysipelas may be excluded by the absence of serious

<sup>1</sup> *Brit. Med. Journ.*, March 21, 1908.

constitutional disorder, by the mildness of the local symptoms, and especially by the fact that the reddened area is not raised and is not bounded by a sharply defined edge. From urticaria, on the other hand, erythema simplex is differentiated by the absence of the characteristic wheals and by the comparatively persistent nature of the eruption.

A variety of erythema simplex which deserves special mention on account of its recurrent character shows itself in the form of congestive redness of the cheeks and nose. This recurs again and again, and may finally become permanent. (*See Rosacea*, p. 126.)

**Erythema fugax** is simply a more transient variety of erythema simplex. Patches of redness come out suddenly on the face or body, and disappear in a day or two. In children the eruption is usually the result of reflex irritation, as by teething, or disorder of the intestinal tract by unsuitable food, or worms. In adults it is sometimes associated with mental emotion: The redness may be either diffuse or scattered over the body in irregular patches of varying size. Under this head may be placed the fleeting rashes described by some authors under the designation of "roseola."

**Erythema solare**, or sunburn, appears to be an effect of the light rather than of the heat of the sun; the violet rays are thought by some to be the actual agents in its production.<sup>1</sup> The electric light has been found to cause an erythema indistinguishable from sunburn (Charcot). The effect of other forms of energy related to light shown in the various forms of erythema, and even more severe lesions, caused by the Röntgen rays, are only now becoming known. A number of cases have been reported in which the X-rays have produced a severe and circumscribed form of dermatitis. Actual burns of all degrees of severity, even to charring of

<sup>1</sup> Bowles, *Brit. Journ. Derm.*, vol. v., No. 8; vol. ix., No. 7.

the deeper tissues of the limb, have also been recorded.<sup>1</sup> (*See* p. 217.)

**Erythema intertrigo**, as the name implies, occurs in parts where two opposed surfaces of skin chafe each other (inner aspect of thighs, groins, axillæ, under pendulous breasts, at the lower part of the abdomen, etc.). Infants and fat persons are most liable to the affection; in the former the eruption is commonest on the parts which are chafed by the napkins. The affected surface is reddened and glazed; there is no exudation, but the epidermis is generally to some extent macerated by sweat. Intertrigo is differentiated from eczema by the absence of "weeping." In the case of young children it is sometimes difficult to distinguish intertrigo from the erythema of congenital syphilis. The eruption is very similar in both affections; but while in intertrigo the redness is usually limited to the parts covered by the napkins, in congenital syphilis it extends down the legs, often to the heels and soles of the feet.<sup>2</sup> The chief point of distinction, however, is that if the affection is syphilitic other characteristic lesions are sure to be present.

**Erythema paratrimma** is a term sometimes used to denote the effect of long-continued pressure on a particular part of the skin, as from long continuance in a recumbent position. The mechanical effects of pressure are aggravated by the irritation of urine and fæces when the patient is not properly nursed, and by conditions which lower the vital power, particularly by lesions of the spinal cord, which interfere with the nutrition of the part. This form of erythema, if not carefully attended to, is certain to end in bed-sore.

**Erythema scarlatiniforme** is a febrile affection

<sup>1</sup> *See* "Light and X-Ray Treatment of Skin Diseases," pp. 24-26.

<sup>2</sup> Crocker: "Diseases of the Skin," 3rd edition, p. 77.

characterised by an eruption closely resembling that of scarlet fever, but not contagious. The onset is marked by shivering and systemic disturbance, which is accompanied or quickly followed by the appearance, on the trunk or elsewhere, of efflorescences, vivid red in colour and variable in size. These often run together so as to cover extensive areas of skin, and the whole surface of the body may be involved. The tongue is foul and has a more or less distinct "strawberry" appearance, and there is usually some reddening of the fauces, with soreness of the throat. In extreme cases the nails may be shed and the hair fall out. The fever speedily subsides, and before the eruption has begun to fade desquamation begins. The average duration of the affection is from two to six weeks, but in some cases it lasts much longer. Two distinct types of erythema scarlatiniforme can be recognised clinically—one running a more or less definite course and disappearing after a few weeks; the other severer and more prolonged. Relapse is not uncommon, a fresh crop of eruption coming out before the first has disappeared. Erythema scarlatiniforme shows a marked tendency to recur, sometimes every year, sometimes at shorter intervals. Those subject to it can generally tell beforehand when an attack is impending. Various complications—pulmonary, cardiac, renal, etc.—have been described in association with erythema scarlatiniforme,<sup>1</sup> but it appears more probable that such conditions, or the drugs employed to combat them, may have been the exciting cause of the skin affection.

The etiology of the disease is by no means clear. A certain idiosyncrasy on the part of the patient is required, and among the exciting causes one of the most

<sup>1</sup> Besnier and Doyon's French translation of Kaposi, 2nd edition, vol. i., p. 343.

potent appears to be exposure to a very high temperature. Crocker<sup>1</sup> has seen it in connection with sewer-gas poisoning, and it has been found in association also with various toxæmias, general or intestinal, with digestive derangements, septic infection, prolapsed and enlarged ovary, and obscure changes of tissue or secretion about wounds. In a large number of the cases reported by French dermatologists—to whom we are chiefly indebted for the recognition of the disease—the use, internally or externally, of certain drugs, notably mercury, would seem to have played an important part in its causation (*see* Chapter XI.); but the fact that erythema scarlatiniforme may occur when the possible influence of drugs or toxic agents of any kind can be absolutely excluded justifies us in placing it provisionally among the erythemata proper. Rheumatism, ague, syphilis, gonorrhœa, albuminuria, and alcoholism have been indicated as possible causes of the affection, but in all these cases it is obvious that the real source of the mischief may be mercury, quinine, salicylate of soda, or some other drug.

Erythema scarlatiniforme derives its chief importance from its resemblance to scarlet fever. This is so close that the most experienced observer may be unable to give a definite opinion as to the nature of the rash during the first few days. The most striking point of distinction is the early commencement of desquamation in erythema scarlatiniforme, and the fact that it begins when the eruption is still in the florid stage—as early as the second day, if the patches are carefully examined with the lens,<sup>2</sup> and at latest on the third or fourth day. Again, in scarlet fever the eruption does not last longer than ten days, whereas in erythema scarlatiniforme it may

<sup>1</sup> "Diseases of the Skin," 3rd edition, p. 82.

<sup>2</sup> Besnier and Doyon: *Op. cit.*, vol. i., p. 341.



persist several weeks, and sometimes indefinitely. In the case of a person who has had previous attacks the history will often be helpful; but in all cases it will be safer to isolate the patient till the diagnosis is clear. It is probable that, in some at least of the cases in which recurrence of scarlet fever has been reported, the disease in one or other of the attacks has really been erythema scarlatiniforme. From pityriasis rubra, to which the affection under consideration bears considerable resemblance, it may be distinguished by the less general diffusion of the scaliness and by the repetition of the desquamative process.

**Rubeoloid erythema**—that is, an “ephemeral” eruption of measles-like character—has been described by Besnier; but he himself admits that when “abortive measles without catarrh, rubeola, and the unlimited series of modified roseolæ are eliminated, there remain very few true rubeoliform erythemata.”<sup>1</sup> I only mention it here, on the authority of that distinguished dermatologist, as affording a possible clue to errors of diagnosis which occasionally occur.

**Erythema uræmicum**, a rare condition described by Huet in 1870, and subsequently by Bruzelius, Lancaster, Lindley Scott, and others, appears as the immediate precursor of uræmic symptoms in interstitial and more rarely in parenchymatous nephritis. It is first seen on the extensor surfaces of the hands and feet as discrete macules of a bright red colour, which become papular or nodular, and in a few days become merged in a general dusky erythema affecting the whole body and face. Desquamation ensues in about a fortnight in the form of small branny flakes, or thin strips. Occasionally vesicles or bullæ form. Death usually occurs within five or six weeks of the appearance of the rash.

<sup>1</sup> *Op. cit.*, vol. i., p. 337.



## INFLAMMATORY ERYTHEMA

Under this heading may conveniently be grouped certain diseases which, differing from each other in some particulars, are all characterised by lesions of an inflammatory erythematous nature.

**Erythema pernio**, or chilblain, is characterised by the development of small patches, dusky red or bluish in colour, and slightly raised. These generally form on the hands (edge and dorsum of fingers) and feet (heel and outer edge, especially on the little toe); but they may occur at any part distant from the heart where the local circulation is much exposed to the influence of cold air (nose, ears, cheeks). Subjectively, the symptoms are great tenderness of the affected parts, and itching, which becomes almost unbearable when they get warm. The subsidence of the inflammation is frequently followed by desquamation. If neglected, the skin often breaks, and ulcers of greater or less extent may form, particularly in under-fed or tuberculous children. Chilblain is more common in childhood and old age than in adult life. It has been suggested that the disease is of tuberculous origin<sup>1</sup>; but there is no cogent evidence of such a connection. Scrofulous children are undoubtedly more liable than others to chilblains; but that is on account of the feeble circulation which is so pronounced a feature in the tuberculous diathesis. The disease is a result of local disorder of the circulation. The arterioles are at first contracted under the influence of cold; but this condition soon gives way to dilatation from vaso-motor paralysis, and the other phenomena of the inflammatory process follow in due course.

In connection with chilblain, **frost-bite**, which is

<sup>1</sup> Cazin and Iscovesco: Congrès Intern. de Dermatol. et de Syphilis tenu à Paris en 1889; *Comptes-Rendus*, p. 511.

pathologically a more advanced stage of the same process, may conveniently be considered. The first effect of the cold is to blanch the part (fingers, nose, or other extremity) by constriction of the vessels; dilatation follows, and the part becomes congested and swollen, assuming a peculiar violet colour. Some itching and pricking are usually complained of. In the milder cases the skin soon recovers its natural appearance; but sometimes the capillaries remain dilated, causing permanent erythema. In serious cases vesicles form. This is a sign of ominous import. The severer degrees of frost-bite, in which gangrene of a part occurs, belong rather to the domain of general surgery than to that of dermatology.

**Erythema keratodes.**—Under this name Brooke<sup>1</sup> has described a rare form of sharply circumscribed chronic erythema of the palms and soles, leading to overgrowth of the horny tissue, and accompanied by œdema and tenderness, which interfere considerably with movement. Besides the lesions on the palms and soles, more or less horny erythematous nodules are seen on the back of the finger joints. The affection begins with the development on the palms and soles of red patches, which speedily coalesce. The thickening of the epithelium quickly follows the first signs of inflammation. The surface of the skin is smooth and the furrows are well preserved. The progress of the affection is gradual; it responds readily to treatment, but tends to relapse. In this respect it differs from the affection described by Besnier<sup>2</sup> under the name of *keratoderma erythematosa symmetrica*, which is continuous. Brooke thinks that the symmetry of the lesions, in conjunction with the synchronous implication of both hands and feet, indicates a central tropho-neurosis

<sup>1</sup> *Brit. Journ. Derm.*, 1891, p. 335 *et seq.*

<sup>2</sup> "Intern. Atlas of Rare Skin Diseases," Pl. v., Fig. 1.

as the cause. Dubreuilh, however, who has recorded a similar case,<sup>1</sup> points out that the symmetry of the lesions is no proof of such an origin, and that the rapid and complete cure of the affection by treatment, mainly local, does not accord with the hypothesis of a central neurotic origin.

**Erythema multiforme** is an inflammatory affection of the skin characterised by a polymorphous eruption, in which papular, vesicular, bullous, nodular, œdematous, and hæmorrhagic elements are mingled together, or succeed each other, so as to form a clinical picture that is kaleidoscopic in its infinite variety. As Besnier and Doyon truly say, "You may pass twenty years of your medical life in observing and collecting cases of erythema, and each year will bring you forms which you have never before seen. Not only does this variety defy all complete description, but categories *ad infinitum* would be needed if one wished to classify all the facts in methodical series. The authors who have attempted to do so have invariably failed, and have only succeeded in producing undigested and useless compilations."<sup>2</sup> All that can be done here is to indicate the salient points—the types of the different forms assumed by the process in the various stages of its evolution. To these typical forms distinctive names have been given, as *erythema papulatum*, *erythema annulare*, and so forth. These names serve a useful purpose as indicating the predominant character of the lesions in a particular case or at a given time. It must be clearly understood, however, that they denote, not different diseases, but phases of the same process.

The eruption, which is generally more or less sym-

<sup>1</sup> *Brit. Journ. Derm.*, 1892, p. 185 *et seq.*

<sup>2</sup> Kaposi: "Maladies de la Peau," Besnier and Doyon's translation, 2nd edition, tome i., p. 364 (Paris, 1891). Translators' footnote.

metrical in distribution, first shows itself, as a rule, on the back of the hand and the dorsum of the foot; it may, however, appear on any part of the body. In the progress of the disease the forearm and arm, the leg and the thigh, and the trunk and face may be invaded. In exceptional cases the mucous membrane of the mouth and pharynx and the conjunctiva may suffer. At the height of the attack the tongue is sometimes greatly swollen. The backs of the hands seldom escape; otherwise the disease follows no rule, either as to the extent of surface over which it is distributed or as to the points which it selects for attack.

Erythema multiforme is often ushered in by rise of temperature, congestion of the pharynx, gastro-intestinal disturbance, and other signs of systemic disorder. Pain in or about one or more of the joints is perhaps the most constant of these premonitory symptoms. Any or all of them, however, may be absent, and the temperature may be below, instead of above, the normal standard. The eruption, as already said, is markedly polymorphous not only in the form but also in the nature of the lesions. As Jamieson points out,<sup>1</sup> however, in their evolution a gradual rise from simple to more complex forms can usually be traced. Thus the commencement of the process is marked by the appearance of a crop of papules no larger than a pin's head, of a bright red colour, which fades on pressure, and is hard and distinctly hot to the touch (*erythema papulatum*). These papules quickly spread centrifugally so as to form small tubercles (*erythema tuberculatum*); or, if closely grouped together, they may coalesce and form raised patches of the size of a threepenny or sixpenny piece. Each patch presents a sharply defined border, and has around it an areola of congested skin; the centre is of a less vivid red than the edge, and its tint soon deepens to

<sup>1</sup> "Diseases of the Skin" (Edinburgh, 1888), p. 87.

violet, then to purple. Bullæ occasionally develop on the patches, and after a time shrink and form scabs. The eruption may disappear in a few days, leaving behind it only a slight brownish discoloration. More commonly the centre of the patch undergoes absorption, while the edge continues to advance. In this way rings of varying circumference are formed, the centre of which is depressed and pale or bluish-red in colour, while the edge is raised and of a florid scarlet hue (*erythema annulare*). The rings, as they enlarge, come in contact with others. This leads to the disappearance of the eruption at the points where the edges meet, so that only segments of the pre-existing circles remain, either isolated or variously joined in the form of curves or wavy lines (*erythema gyratum*). Some of these may continue to spread as narrow raised bands with a sharply defined edge (*erythema marginatum*). As fresh crops of papules continue to come out from day to day, several or all of the phases that have been described may be present in one case at the same time. The multiformity of the lesions may be still further increased by the formation of vesicles and bullæ on the patches and on the centre and borders of the rings, by scabs, and by escape of the colouring matter of the blood or actual hæmorrhage beneath the epidermis. The average duration of the individual lesion in erythema multiforme is little more than a week, but the process as a whole usually lasts a month or six weeks ; and as recurrence is very common and often takes place at short intervals, the duration of the disease may sometimes appear to be indefinitely prolonged.

A particular form of erythema multiforme requires separate mention, because its appearance is so characteristic as almost to entitle it to be classed as a distinct disease, and because, as a matter of fact, it often occurs independently of any of the other lesions that have been

described. This is **erythema iris**, which is met with under two typical forms. One of these begins as a small red spot. On this, in a few hours, a vesicle forms, and around the vesicle a zone of redness quickly develops. The central vesicle soon dries up, leaving a small scab, and a ring of secondary vesicles forms on the red zone encircling it. When the central scab separates, the skin underneath presents a blue, congested appearance, which takes some time to disappear. The process here described may be repeated several times, the concentric rings of vesicles and reddened skin producing an appearance not unlike a target. There may be only a single lesion of the kind, or there may be several scattered about the wrists, arms, and legs. On the fingers, owing probably to the anatomical peculiarities of the part, the target-like appearance is not so well marked. The other form is characterised by the development of a large central bulla surrounded by a ring of vesicles of considerable size; hence the misleading name of **herpes iris** is often applied to it. Another ring of vesicles may develop outside the first, and outside the second there is sometimes a third. The intervening circles of skin are of a purplish hue. In both these forms the process is essentially that of erythema multiforme, the vesication being only an accidental complication.

Although, as has been stated, erythema iris may occur independently of any other form of eruption, it is often associated with the more ordinary lesions of erythema multiforme. In my own experience, it is more apt to occur alone in cold weather, in policemen and other persons whose occupation involves a good deal of exposure. The condition runs a definite course, lasting from two to three weeks, and leaving behind it only a brown stain.

The subjective symptoms in erythema multiforme



are not, as a rule, of any importance. The fever does not always subside with the appearance of the eruption, and in that case some degree of *malaise* may be complained of; but this seldom persists for more than a very few days. There is not generally any itching or burning, and when such sensations are present they are never very severe. In children pyrexia and the other constitutional symptoms are more marked than in adults, and the vesicles are apt to become transformed into pustules, followed by scarring.

Clinically there are two types of erythema multiforme—viz. the ordinary form, which runs a benign course and ends, after a longer or shorter series of relapses, in complete recovery; and a severe form, characterised by visceral manifestation of various kinds, gastro-intestinal crises, acute nephritis, hæmorrhage from the mucous surfaces, pericarditis, and endocarditis. This form usually ends in death.

The **etiology** of erythema multiforme, though still obscure, has gradually had more light shed on it. Probably many causes produce similar results in this disease, and many hold that toxic material circulating in the blood is the chief cause of the symptoms of erythema multiforme, while rheumatism is little concerned in its causation.<sup>1</sup> It may also be due to drugs, such as iodide of potassium and copaiba, and to antitoxic serum. It occurs more frequently in spring and autumn than in the other seasons, and is commoner in females than in males.

<sup>1</sup> Cf. Veiel: *Trans. Internat. Congress of Dermat.*, 1896; Mackenzie: *Trans. Internat. Congress of Dermat.*, 1896; Osler: "On the Visceral Complications of Erythema Exudativum Multiforme" (*Amer. Journ. of the Medical Sciences*, December, 1895); Finger: "Beitrag zur Aetiologie und pathologischen Anatomie des Erythema Multiforme" (II. Internationaler Dermatologischer Congress abgehalten in Wien im Jahre 1892). Wien, 1893, p. 754.



The **pathology** of "idiopathic" erythema multiforme is summed up in the statement that the process is a toxic angio-neurosis. It differs from hyperæmic erythema only in the fact that exudation is a far more pronounced feature than it is in the latter. In the severer form the skin lesions are secondary to septic and suppurative processes in the viscera. Thus they have been observed in cases of cystitis from stricture, of rectal chancre (Finger), of diphtheria, of cholera, etc. Whitfield<sup>1</sup> records an anomalous case associated with cardiac and renal disease, in which the lips and mouth were enveloped in a sheet of vesicles precisely resembling those of confluent small-pox; while others were scattered about on the arms and legs. The lesions, formidable as they were, cleared up, leaving only slight pitting and in some instances no perceptible scar. Galloway and Macleod<sup>2</sup> describe a case in which the lesions, on the face and the hands, formed a connecting link between a circinate erythema multiforme and acute lupus erythematosus. They conclude that certain cases of lupus erythematosus and certain types of erythema multiforme are so closely related as to form the ends of a chain in which all transitional stages may be met with, and that both are due to toxins of which the exact nature is still uncertain.

The **diagnosis** seldom presents any difficulty, the appearance of erythema iris being so characteristic as to make it impossible to mistake it for anything else, and the multiformity of the lesions in other cases being sufficient to differentiate the disease from other conditions. Occasionally urticaria of the papular variety bears some resemblance to erythema papulatum, but the latter can usually be identified by the absence of itching, by the longer persistence of the lesions, and by

<sup>1</sup> *Brit. Journ. Derm.*, vol. xix., p. 273, Aug., 1903.

<sup>2</sup> *Ibid.*, March, 1908, p. 65.

the fact that they leave stains. In the papular stage of eczema, again, the itching is a very marked feature.

The **prognosis** is, in the vast majority of cases, good as regards the particular attack; but recurrence is almost certain, and it is quite impossible to predict that the patient will remain free from the disease. If serious complications occur, the forecast must be based on them, not on the skin affection.

**Erythema perstans.**—Under this designation are grouped cases of erythema analogous to those for which Radcliffe Crocker and Campbell Williams have proposed the name *erythema elevatum diutinum* (p. 189). In one of two cases described by Dr. Wende<sup>1</sup> the affection had persisted for four and a half years, and never during that period was the patient completely free from lesions. First appearing simultaneously on the arms and legs, they quickly spread over the abdomen, gradually developing from a red spot to a ring, a process attended with intermittent itching. The lesions, violet-red in colour, varied in size from that of a pea to three inches in diameter, and the larger ones were well defined. The smaller patches were elevated; the larger ones, made up of rings or segments of rings, formed gyrate or serpiginous figures. During one summer the body was almost free from lesions, but with the onset of cold weather the eruption grew worse. In Wende's other case also there was a fresh exacerbation when the patient was subjected to marked changes of temperature. Wende classes these two cases with others of long-continued erythema that have been reported, some of them exhibiting simple chronic inflammatory patches, others diffused patches, papules, or nodules. Evolution of the lesions frequently begins in the centre and leaves annular or gyrate figures.

The **etiology** of erythema perstans remains obscure,

<sup>1</sup> *Trans. Amer. Derm. Assoc.*, 1905, p. 141.

but the cases reported suggest as possible causes intestinal toxæmia, the gouty or rheumatic diathesis, and atmospheric changes. No age is exempt, nor is either sex, but men seem to be more liable to the affection than women.

**Erythema nodosum** is characterised by the formation of node-like swellings on the legs and feet, less frequently on the forearms, thighs, buttocks, and over the scapulæ, and in rare cases on the face. The distribution of the swellings is generally symmetrical: they come out in crops of two or three at a time, the first point of attack generally being the leg, along the tibia. Their appearance is preceded and accompanied by a greater or less degree of constitutional disturbance, one constant symptom being pain of a rheumatic character about the joints, especially of the lower limbs. The swellings are oval in shape, and lie with the long axis corresponding to that of the limb. They have no well-defined border, and vary from the size of a walnut to a hen's egg. At first bright red in colour, they soon become bluish in the centre and purple at the circumference, and as they subside they exhibit the various changes of tint that are seen in a bruise. They are not, as a rule, painful, but are very tender on pressure. Firm and tense in the beginning, they soon soften and give a sensation somewhat resembling fluctuation to the finger, but they never suppurate. The individual swellings last about a fortnight; but as fresh ones come out in successive crops for two or three weeks, the duration of the affection averages from three to six weeks.

Erythema nodosum is very rare after the age of twenty, and girls show a greater proclivity to it as compared with boys in the ratio of about two to one. It is more common in the spring and the autumn than at other seasons of the year. Exposure to cold, and

especially, according to Crocker, to brine-laden winds, may be an exciting cause. Sir Stephen Mackenzie<sup>1</sup> has shown from an analysis of 108 cases that erythema nodosum is frequently associated with rheumatism. Even when there are no actual rheumatic lesions the patients often present the signs of the rheumatic diathesis. The affection is sometimes complicated by endocarditis or some other acute cardiac mischief. One attack predisposes to others, and in those subject to it the disease is apt to recur yearly at the same season. The pathology is that of hyperæmic erythema. Local vaso-motor disturbance is followed by inflammatory effusion of fluid and escape of white blood corpuscles.

There is seldom any room for doubt as to the nature of the affection. The appearance of the lesions and their association with pains in the joints are characteristic. I have, however, known instances in which erythema nodosum on the face has been mistaken for tubercular leprosy. It must also be distinguished from a form of erythema of the legs to which young girls are sometimes subject. The latter affection is, however, much more chronic in course, and may last for months. Its characteristic feature is the appearance on the legs of indurated patches of infiltration, red or livid in hue, which often break down, leaving ulcers very similar to tertiary syphilitic lesions. This erythematous affection appears to be often a result of fatigue from standing too long; the patients are always weakly and anæmic. Mention should also be made of another variety of node-like swelling which is of not infrequent occurrence in the legs of young women suffering from varicose veins; these swellings are nodules due to capillary phlebitis. In neither of these affections, however, are there any concomitant rheumatic symptoms.

The prognosis in uncomplicated cases of erythema

<sup>1</sup> *Clin. Soc. Trans.*, vol. xix., p. 215.

nodosum is always favourable, the disease tending to subside spontaneously after running its course. It is, however, as already said, not unlikely to recur. If any serious cardiac complication be present, the prognosis must be based on that, and not on the affection of the skin.

**Treatment of the erythemata.**—For *erythema simplex* no treatment is required beyond the removal of any obvious source of irritation. Itching may be relieved by the treatment described under the head of Pruritus (p. 66 *et sqq.*). In *intertrigo* the opposing surfaces should be separated by small pads of lint or cotton-wool, placed above and below the diseased area, or by the interposition of a muslin bag filled with powder as already described. As in the situations where intertrigo is apt to occur decomposition of the secretions is likely to take place, with the result of greatly intensifying the irritation, the parts should frequently be washed with a solution of *boric acid* (*gr.* 10 to 15 in  $\mathfrak{z}\text{j}$  of *distilled water*), then carefully dried, and finally thickly dusted over with some protective powder. In the case of infants the strictest cleanliness must be enjoined: napkins must be changed as soon as they are wet; other conditions keeping up irritation—such as diarrhoea or worms—must be treated by appropriate remedies.

In commencing *erythema paratrimma* (bed-sore) the pressure must, as far as possible, be neutralised by the use of air-cushions or circular pads, or by keeping the patient on a water-bed. The greatest attention must be paid to local cleanliness, and the nutrition of the affected area should be kept up by frequent washing with stimulating applications—such as a mixture of brandy or rectified spirit and white of egg, camphorated spirit of wine, etc. If, in spite of this, a bed-sore forms, it must be treated on general surgical principles.

In *scarlatiniiform erythema* the cause must first, if possible, be removed; in other respects treatment must be symptomatic. It is most important, for obvious reasons, to avoid the use of all drugs that have the property of causing rashes (*see Artificial Eruptions*, p. 215); Besnier has even recorded fatal results from this cause. Locally cooling and soothing applications (*simple or boric acid ointment, calamine liniment, dusting powders*, etc.) are grateful to the patient and may do some good. Payne<sup>1</sup> finds *quinine in large doses* (*gr. xx-xxx a day*) and *sodium salicylate* very efficacious.

In the treatment of *erythema pernio* (chilblain) the principal indication is to stimulate the circulation in the affected region. For this purpose the parts should be kept warm; and, unless the feet are disabled, brisk walking exercise should be taken. One of the best local remedies is *iodine*, applied in the form of the tincture. *Friar's balsam* and *camphorated spirit* are also excellent remedies. One point of great importance is to dry the part as thoroughly as possible after washing: If vigorous friction with a towel or piece of lint can be borne, it will be useful. Ulceration, should it occur, must be treated on general surgical principles. If the patient is anæmic, *ferruginous tonics* should be given; and if the heart's action is weak, it may with advantage be strengthened by the administration of *digitalis*. As regards prevention, the only thing likely to be effectual is to keep the circulation active by warmth (woollen gloves for the hands, thick worsted stockings for the feet), and especially by vigorous exercise. The skin may also be hardened by the use of toilet vinegar in the water used for washing.

In the milder cases of *frost-bite* care should be taken not to warm the parts too quickly. Rubbing with snow

<sup>1</sup> *Brit. Journ. Derm.*, May, 1894.



is recommended, and this must be continued till the circulation begins to be restored. *Ichthyol*, owing to its influence on hyperæmia and circulatory anomalies generally, is of great service; it may be taken internally and used locally, a 10 per cent. ointment being rubbed into the affected part. Massage and galvanism are valuable adjuncts in the treatment.

*Erythema keratodes*, according to Brooke, yields readily to the internal administration of *ichthyol* (mij) in capsules thrice daily, and the constant application of an ointment containing *ichthyol* and *salicylic acid*. Dubreuilh cured his case with *iodide of potassium* internally (given on the hypothesis that the affection was syphilitic), and the application of *diachylon ointment* to which 20 per cent. of *salicylic acid* had been added.

*Erythema multiforme* runs a definite course, and is not much influenced by treatment. The symptoms may, however, generally be mitigated by the exhibition of drugs that have a directly sedative action on the nervous system, such as *opium*, *belladonna*, *quinine*, used in the manner already described. *Arsenic* is often of service when the inflammatory symptoms are not intense; if they are, *antimony* should be given in the form of *vinum antimoniale* (mij to m̄v in 3j of water). The diet should be of the plainest and least stimulating character, and alcohol must be forbidden. When there are gastro-intestinal complications, intestinal disinfection by *salol*, etc., is advisable. The *calamine lotion* already mentioned is the best local application to relieve the pain and burning. In cases of toxæmic origin the treatment of the constitutional condition is of the first importance.

Like *erythema multiforme*, *erythema perstans* is obdurate to treatment. In one of the cases described by Wende (see p. 105), the only remedy which appeared to influence the eruption was *chrysarobin ointment*.



The chief indications in the treatment of *erythema nodosum* are rest and the neutralisation of the effects of the rheumatic poison if there be evidence of its presence. *Salicylate of soda* in doses of from 10 to 15 grains, according to age, should be given three times a day for this purpose. When the swelling and other local symptoms have subsided an *iron tonic* is generally indicated. Rest in bed, with elevation of the affected limbs, in addition to the application of soothing or cooling lotions, is necessary. The swellings should never be opened, however distinctly they may fluctuate.

**Purpura.**—Whether is ever a substantive disease or is only the result of pathological processes that may occur in a number of different morbid conditions, is a question that cannot be regarded as finally settled. The older view that purpura may be an idiopathic affection finds support in the discovery in the blood of purpuric patients, by Letzerich and Kolb, of a bacillus, cultures of which injected into animals caused characteristic hæmorrhages. In Letzerich's blood was found the same bacillus, and his illness, it is suggested, was the result of infection from his purpuric patients.<sup>1</sup> The extravasation of blood into the cutis may take place either as a mechanical effect of over-dilatation or as the result of changes in the blood or in the vessels, or of impaired nerve control. The hæmorrhage, whatever the agency to which it is to be ascribed, gives rise to different appearances in the skin; hence various names have been given to purpuric lesions, according to their shape. Thus the extravasation may cause spots or *puncta*, lines or *vibices*, small patches or *petechiæ*, or diffuse patches, *ecchymoses* or bruises. In all these forms the note of the lesion is that it cannot be obliterated by pressure with the finger, showing that the discolora-

<sup>1</sup> *Wien. klin. Rundschau*, May 14, 1905.

tion is due to effused blood, not to congestion. The lesion, so far as it concerns the dermatologist, is referred to in dealing with the various affections in which it occurs, but it may also be a symptom of certain toxic conditions, such as the exanthematous fevers, some drug eruptions, and scurvy. Török<sup>1</sup> regards all true purpuras as due to infective, or toxic, or autotoxic agents, acting directly on the vascular walls and reaching their point of action by way of the blood-stream. Purpura sometimes occurs in connection with various visceral hæmorrhages—in the brain, lung, retina, and gastrointestinal canal,<sup>2</sup> in tuberculosis, especially in the last stages of phthisis,<sup>3</sup> and in sarcoma and lymphadenoma.<sup>4</sup> Shattuck<sup>5</sup> reports a case in which it was associated with lymphatic leukæmia.

**Purpura, or peliosis, rheumatica** is an acute disease, the symptoms of which are pains in the joints, with purpuric spots appearing in patches, especially in the neighbourhood of the joints in which the pain is most severe. It bears a general resemblance to some forms of erythema multiforme, but the articular pain is generally more pronounced, and the sub-epidermic hæmorrhages, instead of being occasional, are constant, and form the only lesion of the skin. The onset of the affection is sometimes marked by constitutional disturbance; swelling of the joints with pain comes on, and a day or two later the eruption appears, usually during the night. The spots always come out on the knees and ankles, and often on the elbows and wrists, but the trunk is seldom attacked. The pain in the joints frequently abates or ceases on the appearance of the eruption. The

<sup>1</sup> *Journ. des Mal. Cut. et Syph.*, April, 1903.

<sup>2</sup> *Arch. Gén. de Méd.*, February—March, 1900.

<sup>3</sup> Cohn, *Münch. med. Woch.*, No. 50, 1901, p. 2001.

<sup>4</sup> W. P. Herringham, *St. Barth. Hosp. Rep.*, 1902, vol. xxxviii., p. 117.

<sup>5</sup> *Journ. Cut. Dis., including Syph.*, March, 1904.

lesions consist of slightly raised papules or patches, bright red at first, but not fading on pressure. They soon change colour, becoming purplish and then black; they are, in fact, obviously hæmorrhages, and exhibit the usual discoloration of the skin caused by extravasated blood. The affection in the acute stage lasts only a few days, but recurrence may take place in two or three weeks; and this may be repeated, so that the affection may altogether last several weeks or even months. The pathology of the disease is obscure, but the general trend of opinion is that rheumatism plays no part in its causation, and that the pains in the joints are caused by the effused blood. Sir Stephen Mackenzie, however, holds the belief that it is of rheumatic nature.<sup>1</sup>

Women are more often affected than men. The disease is most common between the ages of twenty and thirty, but is not unknown in children.

In this disease the pathological process is carried a step beyond exudation of serum or effusion of hæmoglobin as in erythema multiforme, and actual hæmorrhage takes place. Why hæmorrhage should be a constant phenomenon is not clear, though it may be conjectured that it is due to some alteration in the constituents of the blood dependent on one of those infective, toxic, or autotoxic agents to which the purpuras are attributed by Török (*see* p. 112).

Peliosis rheumatica can hardly be mistaken for any other disease, the combination of pain in the joints with a purpuric eruption around them being almost absolutely distinctive.

As regards prognosis, in uncomplicated cases recovery is certain, but recurrence is almost as certain.

<sup>1</sup> "On the Relationship of Pupura Rheumatica to Erythema Exudativum Multiforme" (*Brit. Journ. Derm.*, vol. viii., 1896, p. 116).

When grave complications are present, they must of course be taken into account in forecasting the issue of the disease.

The **treatment** may be summed up in the following recommendations:—Rest in the horizontal position until the lesions have disappeared; the administration of quinine, iron, and other tonics; and a liberal diet.

**Lupus erythematosus** — *ulerythema centrifugum* (Unna)—or, as I should prefer to call it, *erythema atrophicans*, is an inflammatory process giving rise to cellular infiltration, ending in atrophy of the affected part of the skin. It begins with the appearance of “primary eruptive spots” (Kaposi), characterised by a red, elevated hyperæmic and infiltrated border, with a central scar-like depression, which is either smooth or covered with a dry, firmly adherent scab or thin papery greyish scales (Jamieson). These small red spots fade on pressure. The distribution of the lesions is frequently symmetrical. Saalfeld<sup>1</sup> holds that in the majority of cases the starting-point of the disease is a more or less marked seborrhœa.

When the disease attacks a part provided with sebaceous glands, the skin is usually covered with small adherent scales of sebum, which at the margin of the patch plug the dilated orifices of the glands, thus forming numerous comedones. In parts where the adherent scales become detached, these plugs are seen hanging from their under surface as thread-like tags. In some cases this sebaceous covering is absent, and then the erythematosus character of the lesion is more evident. The affected area is often surrounded by a zone of dilated blood-vessels. In its evolution the process conforms to one of two principal types—spreading either by the peripheral enlargement of single spots (*lupus erythematosus discoides*), or by the successive appearance of fresh crops of spots, which

<sup>1</sup> *Derm. Zeitsch.*, Bd. viii., Hft. 3 (abstr. in *Brit. Journ. Derm.*, 1901, p. 436).





PLATE I.—LUPUS ERYTHEMATOSUS.

coalesce and form patches of considerable size (*lupus erythematosus aggregatus* or *disseminatus*). The former may also be distinguished as the "slow-spreading," the latter as the "eruptive," form of the disease.

Crocker<sup>1</sup> describes a "telangiectic" form, "in which there is no marked change of the surface except persistent circumscribed redness, which close inspection shows to be due to dilated vessels." This is commonly situated symmetrically on both cheeks, the affected area being very much of the size and shape of the red patch which the clown paints on his face; it is not very noticeable to the eye, though on pinching up the tissues marked thickening can be felt.

The face is the part most commonly attacked by lupus erythematosus, especially by the discoid variety of the disease (Plate I). The lesions usually appear symmetrically on both cheeks, where they form wide blotches, which spread inwards and meet in a narrow strip over the bridge of the nose, thus giving rise to the "butterfly" or "bat's-wing" appearance characteristic of the disease. On the other hand, in some cases the process has its starting-point on the nose, and extends thence outwards across the cheeks. It occasionally begins on the helix of the ear, the tip of the nose, the scalp, the hairy part of the face, or the margin of the lips; in rare cases it commences on the nape of the neck. Next in order of frequency to the head and neck as points of attack come the hands (Plate I) and the feet; neither the flexor nor the extensor surfaces are spared. In some rare instances the trunk is invaded in several places. The mucous membrane of the inner surfaces of the lips and cheeks, the hard and soft palate and the larynx, may also be attacked, usually by extension from the skin. Of fifty-six consecutive cases examined by Dr. Thomas Smith sixteen (28 per cent.) had some affec-

<sup>1</sup> "Diseases of the Skin," 3rd edition, p. 761.



tion of the mucous membrane. In one reported by McMurray,<sup>1</sup> the mucous membrane of both lips was involved.

The disease runs a very slow course. The lesions continue to enlarge for ten, fifteen, or twenty years, when the process seems to have, as it were, spent itself, leaving, however, ineffaceable atrophic scars, and in hairy parts permanent baldness. In certain circumstances, especially when the disease is of the aggregate or disseminate type, the inflammatory process may be quickened into greater activity, so that it sometimes resembles severe persistent erysipelas. In such cases the change in the character of the inflammation is heralded and sometimes accompanied by fever and systemic disorder. Sequeira and Balean made repeated examinations of the urine in twenty-seven cases, ten of the disseminated and seventeen of the discoid type, and found albumen in seven. Five of these were of the disseminated variety, and the disease was in an active stage. In a fatal case in which they had the opportunity of making a post-mortem examination, parenchymatous nephritis was found. They are inclined to believe the albuminuria to be of toxic origin.<sup>2</sup> Kaposi describes cases in which the constitutional derangement is so great that the disease often ends in death. I have never met with such cases in my own practice, but one is reported by Dr. T. Sydney Short<sup>3</sup> which ended in death from pneumonia within six months. I can only conjecture that in these cases the local affection had become complicated by erysipelas or some other acute infective process grafted upon it. In the case described by Short there was "erysipelatous swelling" in the parts adjacent to the lesions on the cheeks.

<sup>1</sup> *Australas. Med. Gaz.*, August, 1902, p. 412.

<sup>2</sup> *Brit. Journ. Derm.*, Oct., 1902.

<sup>3</sup> *Brit. Journ. Derm.*, Aug., 1907.

On the other hand, a constitutional state may in certain cases tend to cure. Fordyce mentions a case of the disseminate type which disappeared during pregnancy, leaving only atrophic patches.<sup>1</sup>

Pringle<sup>2</sup> has recorded a case in which multiple epithelioma developed on lupus erythematosus in a woman aged 36. He refers to similar cases published by Riessmeyer and J. Dyer in America, by Stopford Taylor in this country, and by Kreibich of Vienna. A case has also been reported by E. Hollaender,<sup>3</sup> who points out that the conjunction of carcinoma with lupus erythematosus is much less malignant than with lupus vulgaris.

**Diagnosis.**—Lupus erythematosus may be distinguished from other varieties of erythema by the slowness and persistence of the process. The lesion itself, with its central atrophy, surrounded by a well-defined red border, studded with plugs, is sufficiently characteristic to enable it to be identified when it occurs on the face. On the hands, however, it often resembles chilblain so closely that the diagnosis must rest chiefly on the fact that chilblain disappears in the summer, and in the winter usually yields readily to treatment.

In rosacea the lesion has no central cicatrix and no scab adhering to its surface. Ringworm, which occasionally simulates lupus erythematosus, runs a more rapid course, and its lesions present the characteristic fungus when examined microscopically. The points of distinction between lupus erythematosus and lupus vulgaris are of special interest and importance. They will be discussed under "Lupus vulgaris" (p. 456), but the chief points may be summarised here as

<sup>1</sup> *Journ. Cut. and Gen.-Urin. Dis.*, March, 1896.

<sup>2</sup> *Brit. Journ. Derm.*, January, 1900.

<sup>3</sup> *Derm. Zeitsch.*, Bd. vii. (abstr. in *Brit. Journ. Derm.* 1901, p. 103).

follows :—1. In lupus erythematosus the primary lesions are minute red points ; in lupus vulgaris, soft apple-jelly nodules. 2. Ulceration, which never occurs in lupus erythematosus, is frequent in lupus vulgaris. 3. Lupus erythematosus never penetrates below the surface ; lupus vulgaris often attacks the deeper parts (cartilage, etc.) ; hence the old division of lupus into *exedens* and *non-exedens*. 4. While lupus erythematosus always develops at or after puberty, lupus vulgaris almost invariably shows itself before that period.

The **etiology** of lupus erythematosus is obscure. Sex appears to be a predisposing factor, two-thirds or more of the subjects of the disease being women. Of 71 cases under the observation of J. H. Sequeira and H. Balean, only 11 were males, a proportion of 84·6 females and 15·4 per cent. males. Many of the females attacked are chlorotic, and a tuberculous inheritance or tendency is sometimes associated with the disease. Sequeira and Balean found that in eighteen of the said cases there was evidence of tuberculous disease. The two varieties of lupus erythematosus exhibited startling differences in their relation to tuberculosis. The discoid form was associated with tuberculosis in 18 per cent. of the cases, and there was a history of tuberculosis in the family in about 40 per cent. On the other hand, the disseminated form was associated with the presence of tuberculous disease in 70 per cent., and there was a history of tuberculosis in the family in 80 per cent. They think therefore that there is strong evidence in favour of lupus erythematosus disseminatus being of tuberculous origin, or that the presence of tuberculosis modifies and intensifies the course of the disease.<sup>1</sup> In 42 discoid cases, Boeck found evidence

<sup>1</sup> J. H. Sequeira and H. Balean : "Lupus Erythematosus : A Clinical Study of Seventy-one Cases." *Brit. Journ. Derm.*, Oct., 1902.

of undoubted tuberculosis in 28. Roth found evidence of tuberculosis in 185 out of 250 collected cases. In the great majority of cases that have come under my own observation, however, the patients have shown no sign whatever of constitutional taint or weakness, and of 43 cases in Neisser's clinic at Breslau between 1892 and 1901 there were evidences of tuberculosis in only 18.<sup>1</sup> The statistics, therefore, are discordant and confusing.

Lupus erythematosus seldom begins before twenty-five or after forty-five, though in a case of Kaposi's the patient was a child of three. In eight of the cases reported by Sequeira and Balean the disease began before the age of sixteen, and twenty-eight before the twenty-first year. Its immediate starting-point is often a congestive seborrhœa of the nose, occurring either spontaneously or as a sequel of erysipelas, small-pox, or scarlet fever. The immediate cause of the affection is some local disturbance of the circulation; this may be due in some cases to an external agency, such as cold or heat—a circumstance which helps to explain the marked preference shown by lupus erythematosus for exposed parts of the body, such as the face and hands. In the case of a nurse under my care the starting-point was a mosquito bite.<sup>2</sup> In a case reported by Whitehouse the application of a cantharides plaster is said to have been the exciting cause.<sup>3</sup> In other cases the circulatory disturbance is doubtless due to nerve disorder. L. Perrin, of Marseilles, has recorded the case of a girl aged eighteen who, after a violent mental shock at the time of the earthquakes of 1887, followed by temporary mania and suppression of menses, developed lupus erythematosus of the disseminate variety. Perrin thinks—and I am disposed to agree with him—that the nervous shock here

<sup>1</sup> *Arch. f. Derm. u. Syph.*, Dec., 1901, p. 358.

<sup>2</sup> *Brit. Journ. Derm.*, Jan., 1896.

<sup>3</sup> Quoted by Sequeira and Balean, *loc. cit.*

paved the way for the onset of the disease. Sequeira and Balean think that the peculiar limitation of the areas affected affords strong support to the angio-neurotic theory of the disease. Galloway<sup>1</sup> holds the cause to be a toxæmia, as in erythema multiforme, coupled with a tendency to easily produced paralysis of the vaso-motor mechanism, and suggests that there is evidence that tends to associate the affection with chronic nephritic toxæmia. He has also described a case in which it was probably connected with cirrhosis of the liver, that organ being no longer able to exert its cleansing action upon the blood.<sup>2</sup> The relation between certain cases of lupus erythematosus and certain types of erythema multiforme has been pointed out by Galloway and Macleod,<sup>3</sup> but in concluding that both are due to toxins in the circulation, they add that other cases of lupus erythematosus are probably ascribable to external causes.

The **pathological process** is essentially inflammatory in nature. According to Veiel,<sup>4</sup> the primary and essential feature of the disease is an accumulation of blood corpuscles in the dilated capillaries in the papillary layer and the corium, with cell infiltration in the neighbourhood of the blood-vessels. More recent researches have proved that the inflammatory process begins in the blood-vessels of the superficial layers of the cutis.<sup>5</sup>

Microscopic sections show heaping up of small cells which have escaped from the vessels by diapedesis.

<sup>1</sup> *Brit. Journ. Derm.*, July, 1903.

<sup>2</sup> See *ante*, p. 91.

<sup>3</sup> See *ante*, p. 104.

<sup>4</sup> *Trans. Internat. Med. Congress*, London, 1881, vol. iii., p. 167.

<sup>5</sup> Cf. Unna's "Histopathology of Diseases of the Skin," Eng. Trans. 1896, p. 1071 *et seq.*; Holder: *Journ. Cut. and Gen.-Urin. Dis.*, vol. xv., p. 207, 1897.

These cells are especially abundant around the hair follicles and the sebaceous and sudoriparous glands. The small vessels become thickened, and proliferation of connective-tissue corpuscles and epithelium takes place. According to Schoonheid,<sup>1</sup> mast cells are present in the infiltration, but in inconstant numbers.

Granular and fatty degeneration and disintegration of the cellular elements occur, resulting in the formation of a thin scar-like cutis destitute of glands or hair follicles, covered by an atrophied epidermic layer. In short, the process presents the usual characters of slow inflammation, the only feature that can be called characteristic being the peculiar cicatricial atrophy to which it leads. The scarring is only superficial.

There is at present no conclusive evidence, either clinical, anatomical, or bacteriological, that lupus erythematosus is of tuberculous nature. Sequeira and Balean, in spite of the relative frequency with which an association of the disseminate form with tuberculosis was noted in their cases, call attention to the significant fact that lupus erythematosus is very rarely seen in consumption hospitals.<sup>2</sup> My own view is that while it is a distinct pathological entity, and not, as maintained by Dr. Wilfrid Warde,<sup>3</sup> a mere stage in the course of many different affections, it is not a cutaneous tuberculosis.<sup>4</sup> I base my belief on this point not only on the negative results of microscopic and experimental research, but on positive clinical facts which, to my mind, have more weight than the presumptive evidence of hereditary

<sup>1</sup> *Arch. f. Derm. u. Syph.*, Dec., 1900.

<sup>2</sup> For an account of Brocq's ingenious hypothesis that lupus erythematosus is due to vaso-motor paralysis owing to the absorption of toxins from old or latent tuberculous foci, *vide Journ. of Cut. and Gen.-Urin. Dis.*, vol. xiii., 1895, p. 345.

<sup>3</sup> *Brit. Journ. Derm.*, Dec., 1902.

<sup>4</sup> This view is also strongly supported by Sée, *Gaz. des Hôp.*, Oct. 12, 1895.



tendency or possibility of infection, relied upon by those who hold the affection to be of tuberculous nature. Thus lupus erythematosus never ulcerates, whereas tuberculous lesions have a strong tendency, sooner or later, to break down. Lupus erythematosus spreads at the edge, not by development of nodules in the corium. The symmetrical arrangement of the patches in lupus erythematosus is also in favour of their being of non-tuberculous nature. Again, lupus erythematosus scarcely ever occurs in children, whereas lupus vulgaris, which is a tuberculous process, usually begins before puberty, often in early childhood. Further, while in lupus vulgaris tuberculous disease of bones, joints, and glands is a frequent concomitant, this is extremely rare, if it ever occurs, in lupus erythematosus. I have never seen such an association in any of my own cases. The worst case—*i.e.* the one in which the disease was most extensive and most prolonged—was shown at the International Medical Congress<sup>1</sup> in London in 1881. The disease had then lasted nine years, and the patient died five years later of apoplexy. Almost the whole of the integument was diseased, but there was no evidence of any associated tuberculous lesion. Another point is that when the appearance of the lesions on the face is not sufficiently characteristic to justify a positive opinion as to their nature, the doubt is often cleared up by the presence of symmetrical atrophy inside the concha and on the lobe of the ear, or on the scalp—parts not usually attacked by lupus vulgaris. Bornemann<sup>2</sup> records a case in which lupus erythematosus and lupus vulgaris were present in the same patient, the one affecting the scalp and ear, the other the cheek. The latter lesions reacted to tuberculin, the former did not.

<sup>1</sup> *Trans. Internat. Med. Congress, London, 1881, Museum volume, p. 98.*

<sup>2</sup> *Derm. Zeitschr., June, 1905, p. 349.*



In spite of careful research by competent investigators, no specific micro-organism has been found in connection with lupus erythematosus. When acute inflammation supervenes, however, this may be due to the invasion of the infected parts by a micro-organism such as the streptococcus of erysipelas.

Under the name of *lupus vulgaire erythématoïde* Leloir<sup>1</sup> described a class of cases in which lupus erythematosus is closely simulated by lupus vulgaris. The process usually affects the face, and in exceptional cases the neck and trunk; never, apparently, the limbs. The lesion occurs as a patch of varying size, sometimes as two or three patches, beginning generally on one cheek. It is usually confined to one side, but in some cases attacks the nose and both cheeks symmetrically, so as to produce the classic appearance of the "butterfly" or "bat's-wing." The appearance of the surface closely resembles that of true lupus erythematosus, but frequently, on stretching the skin about the spreading edge of the disease, small yellowish nodules having the characters of ordinary lupus nodules can be more or less distinctly recognised. The patches never ulcerate, but a tendency to cicatrisation may be seen at the edge, which is never observed in true lupus erythematosus. The process is extremely chronic, and, in spite of its relatively benign appearance, is very refractory to treatment. In some cases, after a longer or shorter period of time, lupus nodules may gradually invade the whole surface of the patch or a considerable part of it. This is what used to be described as the "transformation" of lupus erythematosus into lupus vulgaris.<sup>2</sup> The process is, however, in reality nothing more than the transformation of the diffuse and flat infiltration of lupus vul-

<sup>1</sup> *Journ. des Mal. Cutan. et Syph.*, May, 1891.

<sup>2</sup> Saalfeld, *loc. cit.*, maintains that there are cases of lupus erythematosus which apparently pass into lupus vulgaris.

garis erythematoïdes into a nodular raised infiltration. In two cases Leloir saw this form of lupus vulgaris extending from the cheek to the inside of the lip, and he suggested that the cases in which lupus erythematosus was reported to have attacked mucous membranes were really examples of the erythematoïd variety of lupus vulgaris. It is unquestionably the fact that lupus erythematosus may in certain parts—as, for instance, the lips—become very nodular and approximate closely in appearance to lupus vulgaris. Sometimes it affects mucous membrane. In the case of a man under my care the disease attacked the inside of the lower lip. Leloir supplemented the clinical evidence pointing to the true nature of the affection which he described, by experimental inoculations of diseased tissue from six cases (four of lupus vulgaris erythematoïdes of the skin and two of mucous membrane); in all, positive results were obtained. He also found tubercle bacilli in small numbers. The microscopic appearances varied in different cases, but as a rule partook to a greater or less extent of the characteristic features of both affections. A point considered by Leloir to be of great importance, as justifying the classification of the disease with lupus vulgaris, is the constant presence of giant cells, which are never met with in lupus erythematosus. The hybrid affection here described by Leloir has been, in all probability, the source of much of the confusion that has hitherto surrounded the subject of lupus erythematosus.

**Treatment.**—In the earlier stages of lupus erythematosus, if the hyperæmia is active, evaporating lotions or cooling ointments or salve muslins, calamine lotion, lotio carbonis detergens, and the solution of subacetate of lead, are all useful. The best application of all is *ichthyol* in the form of a lotion or an ointment, or as a zinc ichthyol salve mull applied at night after bathing the parts with hot water. When hyperæmia

is less pronounced, Hebra's *spiritus saponis kalinus* (to which *oil of cade*,  $\mathfrak{Zj}$  or  $\mathfrak{Zij}$  to  $\mathfrak{Zj}$ , may sometimes be added with advantage) should be rubbed on with lint or flannel. By this means the scales and fatty plugs are removed. The application may be repeated every few days. *Resorcin* (10 per cent. in collodion) is a useful remedy, and *salicylic acid* (3 to 6 per cent. in collodion) is in some cases still better. *Pyrogallic acid* used in the manner recommended by Veiel frequently gives good results. He applies a 10 per cent. ointment of the acid for three or four days or till a brownish eschar forms ; when this becomes detached the wound should be dressed with *iodoform*. In chronic cases the application of a strong solution of ichthyol constantly applied is often of great service. The same may be said also of *lin. iodi*. If chemical caustics fail to give satisfactory results, linear scarification with a suitable instrument (Squire's or Veiel's, modified by Pick), followed by the rubbing in of *iodoform* or the application of a mercurial or salicylic acid plaster mull, will sometimes effect a cure. The procedure may be repeated as often as required. The thermo-cautery lightly applied, followed by the application of *iodoform*, *boric acid*, or other *antiseptic powder*, also gives good results. The results of X-ray treatment are uncertain. In the follicular or sebaceous types, improvement, and frequently arrest of the morbid process, may be looked for in the majority of cases ; but my experience is that it is difficult to secure complete removal of the affection, and relapses often occur. I have obtained better results with high-frequency currents and the Finsen light, the former in subacute, the latter in chronic cases.<sup>1</sup> Some cases of a chronic character are benefited by ionisation with zinc or copper. In most cases constitutional treatment is

<sup>1</sup> For details of cases, see "Light and X-ray Treatment of Skin Diseases" (1907), pp. 91-94.

important. Careful attention should be paid to diet. Alcohol, tea and coffee are better avoided. Food that is easily digested and does not cause flushing of the face is the most suitable. The bowels must be regulated, and the intestines disinfected with such drugs as *salol* and *ichthyol*. General hygienic principles should be observed, such as fresh air, exercise, etc.; but, as a rule, sea air is detrimental. Some writers lay great stress on the internal use of *arsenic*, but I cannot say that I have ever seen any good effect follow the administration of this drug. *Quinine* in full doses is often of real service, especially when associated with the local application of iodine.

**Rosacea** is in its simplest form nothing more than temporary congestion of the face caused by reflex circulatory disturbance. At first the flushing comes on after eating or exposure to changes of temperature, or, in women, just before the menstrual period; the condition, however, gradually becomes chronic, the skin in the middle third of the face becoming permanently reddened, the point of maximum intensity being in most cases the nose. Subsequently there is almost always considerable dilatation of the superficial vessels. After a time hypersecretion and retention of the sebaceous matter occur, followed in some instances by inflammation. The affected area is thus studded with pimples marking the obstructed ducts. This is the condition popularly known as "grog-blossoms"—a designation as unscientific as it is uncharitable, for, though drink may be an aggravating circumstance, the affection is often seen in the most temperate persons. The disease sometimes passes into a further stage, the chronic inflammatory process giving rise to hypertrophic thickening, with lobulation of the skin of the nose known as rhinophyma (Fig. 1). This is particularly seen in habitual spirit-drinkers who are much exposed to the weather, cab-

men furnishing a large proportion of victims. The hypertrophy occasionally takes the form of pendulous masses.

Rosacea is much more common in women than in men, owing, doubtless, to the periodical disturbances of the circulatory equilibrium to which they are subject. Women who have passed the "change of life" show even less proclivity to the affection than men of the same age. Over-indulgence in alcohol, chronic dyspepsia, feebleness of circulation, and exposure to sudden



Fig. 1.—Rhinophyma.

changes of temperature may all help to cause it, especially when two or more of these factors are combined. The use of cosmetics containing irritant substances may also play a part in its production.

Pathologically the condition is a vaso-motor neurosis called into action by reflex irritation, and followed by inflammation in and around the sebaceous glands with permanent dilatation of superficial blood-vessels, and occasionally by overgrowth of connective tissue around them.<sup>1</sup>

<sup>1</sup> Cf. Dohn : "Rhinophyma : Clinical and Histological Observations." *Arch. f. Derm. u. Syph.*, Bd. xxxvii., Hft. 3, Dec., 1896 ; and *Brit. Journ. Derm.*, vol. ix., p. 290, July, 1897.

The **diagnosis** of rosacea can hardly ever present any difficulty. The conditions for which it might possibly be mistaken are lupus erythematosus, certain tertiary syphilides, and acne vulgaris. From lupus erythematosus it is distinguished by the absence of scaliness, by the border, which is not raised and shows no signs of active spreading, by the absence of atrophic scarring in the centre, and by its fluctuations dependent on digestive disorder and other causes. From tertiary syphilides it is distinguished by its symmetry, by its slow course, by the absence of any tendency to ulceration and of marks or history of previous lesions. The possibility of a mixture of diseases must, however, always be borne in mind. Rosacea is, as a rule, sharply differentiated from acne vulgaris by the age of the patient, the absence of comedones, and the redness of the affected surface.

The **prognosis** is generally favourable as regards mitigation of the condition, and in the majority of cases a complete cure can be effected.

In rosacea the first object of **treatment** is to get rid of possible sources of reflex irritation by correcting any functional disorder of the stomach, liver, bowels, ovaries, etc., that may exist. The diet must be carefully regulated, whatever causes flushing of the face being avoided. Abstinence from alcoholic stimulants should be enjoined, and it would be well also if the patient could be induced to forego tea and coffee. Arsenic is seldom of use. After the removal of any obvious cause, the most trustworthy internal remedy is *ichthyol*, which often brings about a marked improvement after even a few days' administration. It regulates the bowels, prevents flatulence, helps the digestion, stops the reflex flushing, and steadies the circulation. I usually begin by ordering *five grains in capsules, tabloids, or pills*, to be taken on an empty stomach early in the morning and late at



night. In a few days I increase the dose to seven and a half, and afterwards to ten grains and upwards, until the desired results are obtained. In addition to the internal administration of ichthyol, local treatment on the lines laid down for *acne vulgaris* (*see* p. 408) will be required if there be inflamed papules and pustules. The varicose venules may be destroyed by scarification, the superficial use of Paquelin's cautery, or, better still, by electrolysis. Hypertrophic excrescences should be pruned with the knife, and pendulous growths must be dealt with by ordinary surgical procedures. Good results with light treatment and with the X-rays have been reported by some observers.

**Pellagra** is a tropho-neurotic affection, endemic in Northern and Central Italy, in the northern part of Spain, in Roumania, and in Egypt.<sup>1</sup> It generally commences in the spring with malaise, pains in the joints, a burning sensation in the back, radiating through the limbs to the hands and feet, and gastro-intestinal disturbance. An early symptom is spastic paresis of the lower limbs.<sup>2</sup> The skin affection consists of an erythematous eruption, chiefly affecting parts exposed to the sun. The skin is swollen and tense, and is the seat of burning or itching sensations; petechiæ are frequent, and bullæ also occur, which on rupturing leave indolent ulcers. In about a fortnight from the commencement of the attack the erythema subsides, and desquamation follows, leaving the underlying skin

<sup>1</sup> In 1888 there were 10,626 persons in Roumania suffering from pellagra, in a total population of 5,339,650 (Dodun des Perrières, *Rev. Méd. de l'Est*, Sept. 1, 1893). As regards Egypt, *see* Sandwith, Brit. Med. Assoc. Annual Meeting, 1895.

<sup>2</sup> Belmondo: "Le alterazioni anatomiche della midolla spinale nella pellagra e loro rapporto coi fatti clinici" (*Rivista Sperim. di Freniatria e Med. Leg.*, vols. xv., xvi., 1889-90). F. Tuczek: "Klinische und anatomische Studien über die Pellagra" (Berlin, 1883; Fischer).



thickened and stained to the colour of *café au lait* or sepia. The symptoms usually subside towards the end of summer, only to reappear, however, in the following spring. The attacks thus recur regularly every year, the thickening and pigmentation being increased on each occasion in the first four or five years. Afterwards the integument undergoes atrophy, and becomes dry and wizened as in old age. This is especially marked on the backs of the hands. The nails and hair show no change. When the patient has suffered from the disease for three or four years he becomes weak, wastes, his vision becomes dimmed, swallowing is painful, colliquative diarrhœa sets in, symptoms of cerebro-spinal irritation increase, and he sinks into a typhoid condition, in which he passes away. Insanity is an extremely frequent complication, the mental disorder chiefly showing itself in the form of melancholia, with marked suicidal tendency. The disease lasts on the average five years; in mild cases patients may live ten or fifteen years. Poverty, insufficient nourishment, and insanitary surroundings are predisposing causes. The immediate etiological factor is generally believed to be the prolonged use as food of decomposed or fermented maize, which has a toxic effect analogous to ergotism. De Giaksa thinks the disease may be caused by the use of even sound grain by imperfectly nourished individuals, auto-intoxication being caused by the formation of toxic substances in the intestines, owing to modifications in the substances of which the grain is composed.<sup>1</sup> The maize theory in its various forms is subjected to close and damaging scrutiny in the last edition of Manson's "Tropical Diseases," where it is pointed out that the

<sup>1</sup> Contributo alle cognizioni sull' etiologia della pellagra (*Annali dell' Istituto d' Igiene Sperimentale*, vol. ii., fasc. 1, and vol. iii., fasc. 1). These papers embody the results of an elaborate investigation into the etiology of pellagra.

areas of pellagra endemicity and those of maize culture do not correspond—that while on the one hand pellagra is absolutely unknown in the United States, for example, where maize is extensively consumed, on the other hand the disease frequently arises in regions in France, Spain, and Italy where the grain has never been used as an article of food. Sambon suggests that pellagra probably belongs to the protozoal group of infections. The disease is most common between the ages of thirty and fifty; females are more often attacked than males, and children are less liable than adults. Pathologically, pellagra consists in a toxic effect on the vagus and sympathetic nerves, giving rise to hyperæmia and inflammatory processes in the membranes of the brain and cord, in the liver, spleen, kidneys, etc.; to atrophy of the principal viscera and of the skin; and to fatty degeneration of various organs. In some cases there is actual wasting of the brain; in the cord the lateral column and the crossed pyramidal tract are chiefly implicated. Both anatomically and clinically there is much resemblance between pellagra and general paralysis of the insane.

The **diagnosis** can hardly ever be doubtful, the disease presenting features clearly differentiating it from other affections. The prognosis is very gloomy, except in very slight cases.

In the **treatment** of pellagra the most important point is prophylaxis. Stringent enactments have been passed by the Italian Government for the prevention of the sale of diseased maize, and for the suitable care of patients in institutions. When the disease is developed, it is virtually incurable, and treatment must be symptomatic, *opium*, *quinine*, and *calomel* being used according to the indications. *Arsenic* is said by Lombroso to be the most efficient remedy; it should be given in small doses ( $\frac{1}{2}$  to 2 minims of liquor

*arsenicalis* daily). Attention must be paid to the hygienic surroundings of the patient.

**Acrodynia** is closely allied to pellagra. The disease so far has been observed chiefly in France, where it has several times occurred epidemically in the army. The affection is a form of erythema, the eruption being preceded by gastro-intestinal disturbance, conjunctival congestion and oedema of the face, with aching and numbness in the limbs, pricking and burning in the palms and soles; the sensitiveness of the skin in the latter situations is at first increased, and afterwards abolished. The eruption, which consists of erythematous patches sometimes intermingled with papules and bullæ, comes out chiefly on the hands and feet, sometimes extending over the limbs to the trunk. It is followed by exfoliation of the epidermis, a blackish discoloration being left in the affected parts, especially in warm regions, as between the thighs. In severe cases wasting and paresis of the limbs are sometimes observed. The eruption is not, as a rule, accompanied by any febrile phenomena, and the disease scarcely ever proves fatal, except in elderly or weakly subjects, who sometimes succumb to diarrhœa. Recovery generally takes place in a few weeks. The etiology of acrodynia is obscure; it has been ascribed to some toxic element in the food, but of this no proof is forthcoming. There are no *post-mortem* changes that can be called characteristic of the affection.





PLATE II.—DERMATITIS HERPETIFORMIS

## CHAPTER IX

### AFFECTIONS OF THE SKIN DEPENDENT ON NERVE DISORDER (*continued*)

DERMATITIS HERPETIFORMIS—HERPES GESTATIONIS—  
IMPETIGO HERPETIFORMIS—CHEIROPOMPHOLYX—  
PEMPHIGUS—HERPES

**Dermatitis herpetiformis.**—Affections of the skin, differing from each other more or less in certain particulars, but all characterised by pemphigoid eruptions, causing intense itching and burning, have been described under various names by different authors. Thus dermatologists are acquainted with the eczema pruriginosum and herpes circinatus bullosus of Erasmus Wilson, the hydroa vacciniforme of Bazin, the hydroa herpetiforme of Tilbury Fox, and the pemphigus pruriginosus of Hardy. Though each of these affections, as described by the author who named it, has features of its own, they are essentially nothing more than varieties of the extraordinarily polymorphous disease to which Duhring has given the name of "dermatitis herpetiformis."<sup>1</sup> The affection has been defined by Unna as "a chronic neurosis of the skin, associated with some

<sup>1</sup> A summary of Professor Duhring's observations and researches on this affection will be found in his "Cutaneous Medicine, a Systematic Treatise on Diseases of the Skin," Part ii.; Philadelphia, 1898. The affection appears to have been first recognised and was clearly described by Tilbury Fox (*see* a posthumous article published with annotations by Colcott Fox, in *Amer. Arch. Dermatology*, 1880), whose claims to priority in this matter have been overlooked both in America and on the Continent.

yet unexplained blood changes not markedly interfering with the general health. This causes a more or less universal eruption, coupled with burning or itching sensations, and regularly recurring for an indefinite period after intervals of complete or comparative immunity. The type is erythemato-bullous, which, however, may undergo considerable modification." (Plate II.) Characteristic objective features are the multiplicity and herpetiform grouping of the lesions. The most marked subjective symptom is intense itching and burning. This is sometimes relieved, though it is occasionally aggravated, by the appearance of the eruption, and in most cases it is subject to paroxysmal exacerbations. The symptoms are frequently of such severity as to rob the patient of sleep and keep him in a state of constant nervous excitement. When the erythema is spread over an extensive area, great pain and tension in the skin are complained of.

Almost any part of the cutaneous surface may be invaded, the limbs (both flexor and extensor aspects), the scalp, the face, and the trunk being all equally liable. In the majority of cases the limbs, especially the wrists and forearms, are the first points of attack. The lesions, as they subside, leave pigmented areas of greater or less extent, the pigmentation varying from dirty yellow to an almost coppery brown; the discoloration is often very persistent. The skin remains thickened and rough, and pitted and scarred here and there from the healing of excoriations underneath the scabs.

In severe cases the disease is ushered in by fever and general constitutional disturbance, and there is often great cutaneous irritation before there is any visible lesion of the skin. This is so marked a feature in some cases that the patient is frequently able to foretell an impending relapse two or three days beforehand.





PLATE III.—HAND OF A PERSON AFFECTED WITH  
DERMATITIS HERPETIFORMIS.

*(From a replica of Baretta's model, No. 1333, in the Museum of  
the Hôpital St. Louis, Paris.)*





PLATE IV.-DERMATITIS HERPETIFORMIS (DR. LIDDELL'S CASE).



The actual onset—that is, the appearance of the skin eruption—is often sudden. The characteristic feature of the eruption is, as already said, its extreme multiformity, erythematous, papular, vesicular, pustular, and urticarial elements being mingled together in every conceivable variety of size and shape, and in all stages of evolution; or one type may predominate at one time and another at another. The earliest, and perhaps the most characteristic lesion is a vesicular eruption in which the vesicles are arranged in herpetiform groups on an erythematous base. In the earlier stages these vesicles soon dry up and form scabs, but at a later period they have a tendency to run together and form bullæ, often of considerable size. (Plate III.) These bullæ do not, as a rule, burst spontaneously. Their contents, which are at first clear, gradually become opaque, and as the contained liquid thickens the bulla slowly shrinks, and if left to itself finally shrivels up to a thick brown scab. In addition to the elementary lesions of various kinds, the skin in the affected parts shows excoriation and other results of scratching.

The disease exhibits the most marked tendency to recur, attack following attack at varying intervals, sometimes for many years.

Dermatitis herpetiformis may be said to combine in itself the characteristics of several different varieties of skin affection, the herpetic and pemphigoid types on the whole predominating. (Plate IV.) The essential features of the process are: (1) The multiformity of the eruption—a multiformity showing itself not only in the appearance of crops of lesions of different types in different phases of the disease, but in the co-existence of several different types at the same time. (2) Disorders of sensation of varying intensity, but always present in greater or less degree—itching, burning, and pain. These paræsthesiæ may precede or accompany the eruptions, and

may exist in the intervals between the successive crops. (3) The protracted course and constant tendency to exacerbation and recurrence. (4) The absence in most cases of any grave impairment of the general health, in spite of the physical suffering and mental anguish caused by the disease. In some cases, however, especially in the later stages, the attacks are accompanied by symptoms of blood-poisoning, and death has been known to occur. I have myself seen eight cases in which death occurred as the direct result of the disease. In two of these the fatal issue was due to heart failure, and in the others to exhaustion after prolonged attacks. Pringle<sup>1</sup> has also seen two cases in which the disease ended in death. In one of these the patient, who had suffered from the disease for seven years, died of peritonitis following perforation of the ileum, which was the seat of numerous ulcers, others of the same kind being scattered about the cæcum. These were regarded as internal manifestations of the disease. Throughout the illness there had been indications of marked implication of the alimentary mucous membrane (dysphagia, vomiting, diarrhœa, and melæna).

The sexes appear to be equally liable to dermatitis herpetiformis, and no age is exempt. Unna has described a variety of the affection which he considers peculiar to childhood, and which he therefore proposed to call "hydroa puerorum."<sup>2</sup> The following are, according to him, its distinguishing features: (1) It begins in the first years of life. (2) Continual relapses take place during childhood. (3) The attacks reach their maximum of intensity in the hot season. (4) Multiformity of lesion is not so marked a feature as in ordinary dermatitis herpetiformis, the eruption almost exclusively con-

<sup>1</sup> *Brit. Journ. Derm.*, 1899, p. 130.

<sup>2</sup> Congrès Intern. de Derm. et de Syph., tenu à Paris en 1889; *Comptes-Rendus*, Paris, 1890, p. 185.

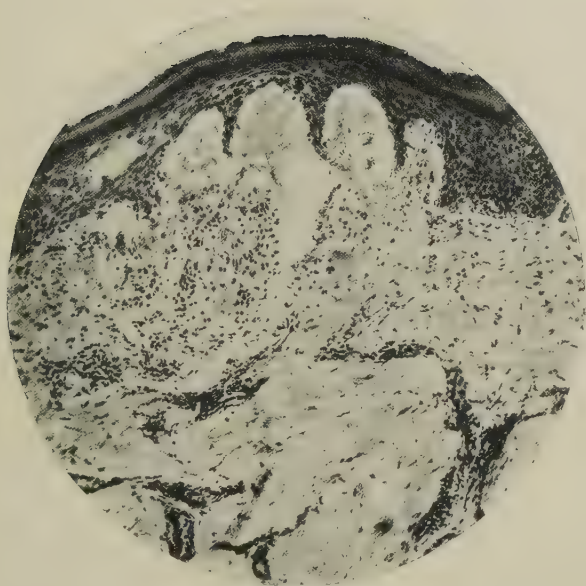


PLATE V.—MICROSCOPIC APPEARANCE OF SECTION  
OF VESICLE IN DERMATITIS HERPETIFORMIS  
(GILCHRIST).





sisting of papular erythema, vesicles, and bullæ. (5) Conversely to what is the rule in adults, itching is a much less prominent symptom than pain. (6) The acuteness of the attacks is in itself a characteristic feature. (7) The general health is affected even before the appearance of the eruption. (8) The attacks become progressively less severe as the period of puberty is approached. (9) The disease disappears or becomes extremely mild in adult age. (10) Boys are more liable to the disease than girls. The affection seems to be identical with that described by Bazin under the name of "hydroa vacciniforme" and by Mr. Hutchinson under that of "hydroa æstivale." Meynet and Pehu<sup>1</sup> argue that there is no reason for making of the juvenile cases a separate group. Dr. John T. Bowen, of Boston, U.S.A.,<sup>2</sup> agrees with Unna that the cases described by him form a special subdivision of dermatitis herpetiformis, but himself reports fifteen cases of the adult type of the affection in children. In certain cases, he suggests, vaccination may be the exciting cause of the eruption.

Cases of **dermatitis vegetans**, in which lesions characteristic rather of dermatitis herpetiformis than of pemphigus vegetans were followed by the occurrence of vegetations, have been described by Jamieson, Hartzell, Hallopeau (under the name of *pyodermite végétante*), W. A. Pusey, Fordyce and Gottheil, and others. Fordyce and Gottheil<sup>3</sup> remark that in its preference sites—the mouth, genitals, and lower extremities—dermatitis vegetans resembles pemphigus vegetans, but in its relatively benign course is in striking contrast with that affection. "If we assume," they add, "that the disease in its inception was a dermatitis herpetiformis, the late persistent and vegetating lesions could be ex-

<sup>1</sup> *Ann. de Derm. et de Syph.*, Dec., 1903, p. 893.

<sup>2</sup> "Dermatitis Herpetiformis in Children," 1905.

<sup>3</sup> *Trans. Amer. Derm. Assoc.*, 1906, p. 170.

plained by reason of a secondary pyogenic infection." Pusey<sup>1</sup> also explains the vegetations by assuming a secondary infection, consequent upon a "weeping" dermatosis, not necessarily eczematous.

As to the **etiology** of dermatitis herpetiformis, all that can be said with certainty is that the neurotic disposition is a predisposing cause. In the great majority of cases the outbreak of the disease is preceded by a definite nervous shock or long-continued depressing influences. As in all other diseases, some predisposition is necessary before the exciting cause can produce its effect; in the case of dermatitis herpetiformis the susceptibility of the patient is probably determined simply by loss of nerve force. Of the sudden onset of the disease after extreme nervous shock Duhring relates a striking example.<sup>2</sup> A strong, healthy man, aged thirty-four, who had never before had any disease of the skin, narrowly escaped being buried alive in a quagmire. Three days later the eruption appeared in the form of small variously shaped vesicles, and he continued subject to the disease in a well-marked form for at least four years.

Investigations by Leredde, Perrin, Darier, and others into the changes occurring in the blood of cases of dermatitis herpetiformis, pemphigus, and bullous leprosy have disclosed the fact that the eosinophile cells of the blood are usually, if not always, in great excess. Thus instead of finding them present in the proportion of 1·4 per cent. of all leucocytes, as in normal blood, they are usually found increased to from 8 per cent. to 20 per cent., and cases have been reported with an even higher percentage (69·6 per cent., rising to 77·2 per cent., in a case of dermatitis herpetiformis reported by

<sup>1</sup> *Trans. Amer. Derm. Assoc.*, 1906, p. 160.

<sup>2</sup> *Amer. Journ. Med. Sci.*, Jan., 1885.

Bushnell and Winkelried Williams,<sup>1</sup> and 60 per cent. in pemphigus). In a case of mine,<sup>2</sup> in which the blood was examined by Whitfield, the eosinophilia rose from 4·9 per cent. in the blood at the commencement of an acute attack to 12 per cent. of all leucocytes present when the eruption was at its height.

This discovery led to the examination of the fluid obtained from the bullæ and vesicles in various diseases, with the result that it was found that whereas in artificial blisters produced in the ordinary way the eosinophiles amount to about 8 per cent., in the bullæ of pemphigus and dermatitis herpetiformis the percentage is very much higher—from 15 per cent. to 93 per cent. Sections of the skin of the diseased area in cases of dermatitis herpetiformis also show a certain number of eosinophiles among the other leucocytes present in the inflammatory exudation. These cells may be stained in the blood by a mixture of methyl green, orange, and acid fuchsin (or the blood); blister fluid or sections may be stained with eosin and afterwards with hæmatoxylin, and Leredde recommends first staining with Mayer's hæmatoxylin, afterwards with a mixture of 1 per cent. eosin in alcohol and 1 per cent. orange in water.

Comparatively little diagnostic significance can be attached to these cells, since it has been found that they occur in the blood of patients suffering from pemphigus, syphilis, leprosy, and erythema multiforme, and in the serum of the bullæ and vesicles in pemphigus, erythema multiforme, eczema, dysidrosis, and ecthyma. Brocq,<sup>3</sup> however, holds that it is the presence of eosinophiles in large numbers both in the

<sup>1</sup> *Brit. Journ. Derm.*, 1906.

<sup>2</sup> *Ibid.*, June, 1897.

<sup>3</sup> *Ann. de Derm. et de Syph.*, t. ix., Oct. and Nov., 1898 (abstr. in *Brit. Journ. Derm.*, 1899, p. 213).

blood and in the vesicles that is characteristic of dermatitis herpetiformis.

**Pathologically**, dermatitis herpetiformis is probably a functional neurosis. Possibly in some of the severer cases peripheral neuritis may be present, but no proof of this has yet been advanced. It has been suggested by Hallopeau and others that the neurosis may depend on the presence of a toxin in the blood, but of this there is as yet no conclusive evidence. In a collection of fourteen cases analysed by Dr. Engman,<sup>1</sup> indican was found in marked excess in the urine, and the indicanuria was coincident with the eosinophilia. Microscopical examinations by Gilchrist<sup>2</sup> (see Plate v.) have shown that the disease is characterised in its earlier stages by a very acute inflammation of the papillary layer of the corium with formation of vesicles immediately beneath the epidermis and the migration of large numbers of polynuclear leucocytes; the epidermis is only passively engaged.

Dermatitis herpetiformis may be mistaken for any of the diseases whose characteristic lesion predominates at any given period of its course. The **diagnosis** must rest on the following points: (1) The multiformity of the lesions; and under this head must be counted the scars, pits, and pigmentary blotches left by previous attacks as well as the vesicles, bullæ, etc., actually present. (2) The intensity of the itching, which, as already said, often vexes the patient when otherwise the disease appears to be quiescent. (3) The frequency of relapses; and (4) the general refractoriness of the affection to treatment of every kind. The practitioner must be guided by the aggregate of symptoms rather than by one or other feature which may happen to be predominant at a particular time.

<sup>1</sup> *Trans. of Amer. Derm. Assoc.*, 1905, p. 173.

<sup>2</sup> *Johns Hopkins Hosp. Rep.*, vol. i.

No **treatment** appears to be of much avail in curing or even controlling dermatitis herpetiformis. All that can generally be done is to relieve pain and induce sleep by hypodermic injections of morphine or opium internally, and soothe irritation by some of the means already described. No spirituous lotions should, however, be employed, as they cause smarting of the skin, which is always raw and tender. The rubbing in of *weak sulphur ointment* is the local measure which has so far given the best results; the inunction should be done with some degree of force, so as to rupture the vesicles and bullæ. This method should be employed at first over a limited area, so as to minimise the risk of setting up dermatitis. The application of *almond* or *carbolic oil*, or, better still, *olive oil combined with lime-water*, to the whole surface sometimes gives relief. *Salicylic acid* is often useful as a local remedy. Schwimmer<sup>1</sup> obtained satisfactory results with *thiol*, a solution (10·0 to 30·0) of which was painted over the affected surface twice daily for two or three days, the skin being then carefully washed with pure water. Weak *ichthyol* ointment or solution is of value as a local application. Of internal remedies, *arsenic* is probably the most efficient, although in many cases it seems to have little or no effect. The dose of arsenic required is smaller than that generally used in pemphigus. In the early stages, when the inflammatory symptoms are very marked, *antimony* may be useful, but its use should be continued only for a short time. I have seen good effect from small doses of quinine. *Iron*, *phosphorus*, and *nerve tonics* may do good by maintaining the strength and bracing up the nervous system, especially in the later stages of the disease. I have seen good results in subduing nervous symptoms from the use of *phenacetin*—*gr. v in the middle of the day*, and

<sup>1</sup> *Wien. klin. Woch.*, 1890, No. 18.

*gr. x-xv in the evening.* The mid-day dose may with advantage be combined with *citrate of caffeine, gr. ij.* Phenacetin has proved beneficial in the hands of Pringle, who has also seen much diminution in the amount of itching from *antipyrin*.<sup>1</sup> Warm bathing gives relief in some cases, but in others appears to aggravate the symptoms. The diet should be strictly regulated, all substances that have any tendency to disagree being carefully avoided, and liquids, such as coffee, generous wines and spirits, which stimulate the heart and cause an increased flow of blood to the skin, being absolutely prohibited. Disturbing emotions of all kinds are likely to intensify the evil, and the patient should expose himself as little as possible to vicissitudes of temperature.<sup>2</sup>

**Herpes gestationis** is a skin affection occurring in association with pregnancy, and characterised by multiformity of lesion and excessive itching. Its clinical features are practically identical with those of dermatitis herpetiformis, the only point of distinction being, according to Brocq, that among the lesions observed pustules are less frequent than in the latter affection. The symptoms come on during the last six months of gestation, sometimes a few days after delivery. The eruption, which is multiform in character, appears usually first on the limbs, especially the hands and arms; sometimes the umbilicus is the point first attacked. The subjective phenomena (itching, burning, etc.) are constant and very pronounced. Sometimes the eruption is accompanied by slight febrile disorder, but on the whole the affection has little effect on the health beyond causing a certain degree of fatigue. When the period

<sup>1</sup> *Brit. Journ. Derm.*, 1899, p. 131.

<sup>2</sup> For a discussion of the whole subject of dermatitis herpetiformis and other conditions, see *Brit. Journ. Derm.*, 1898, pp. 82 and 118; with comments by Brocq, *ibid.*, 1899, p. 213.



of parturition is over, the disease, as a rule, disappears spontaneously; but it has a marked tendency to recur with each successive pregnancy, increasing each time in severity, and to merge into ordinary dermatitis herpetiformis. A curious fact pointed out by Brocq<sup>1</sup> is that true dermatitis herpetiformis seems to disappear in women suffering from it if they become pregnant.

In regard to the **treatment** of herpes gestationis, there is nothing to be added to what has been said concerning dermatitis herpetiformis, except to warn the practitioner to be cautious in the use of internal remedies, in view of the patient's condition.

**Impetigo herpetiformis.**—Under this name Kaposi<sup>2</sup> described an affection which, while presenting certain affinities with dermatitis herpetiformis, exhibits peculiar characteristics sufficiently well marked to entitle it to be classed as an independent disease. It begins with the development of small pustules with opaque contents, which gradually assume a greenish hue. These pustules are arranged in groups on an inflamed base, and lie very close together; they appear first in the groin, on the umbilicus, on the breast and in the armpit, other parts being attacked at a later stage. They dry up in one or two days, leaving a dirty brown crust. New pustules come out, forming a double and even a triple circle around the first as a centre; these, as they dry, increase the size of the central scab. In this way, starting from a few isolated points, the disease may, by the coalescence of adjacent foci, gradually spread over extensive areas. When the scabs become detached, the skin underneath is found to be red and smooth, sometimes moist, as in eczema, but never ulcer-

<sup>1</sup> "Traitement des Maladies de la Peau," Paris, 1890, p. 135.

<sup>2</sup> "Maladies de la Peau," French translation by Besnier and Doyon, 2nd edition, vol. i., p. 799, Paris, 1891.

ated. In the course of three or four months nearly the whole cutaneous surface may be invaded.

The skin is burning hot, tense, and scabbed all over, the cuirass of crusts being here and there cracked and excoriated. The mucous membranes of the tongue, palate, velum, and the back of the pharynx in some cases present circumscribed greyish patches. In one case referred to by Kaposi groups of pustules were found in the œsophageal folds; in many places, especially near the cardiac orifice, these had ulcerated.<sup>1</sup> The eruption on the skin is accompanied by more or less continuous fever, exacerbations of which, with rigors and general constitutional disturbance, usher in each fresh crop of pustules. The disease lasts a few weeks, or at most some months, and is almost certain to prove fatal. The cause of death is by no means clear, but in some at least of the cases it was due to marasmus. Impetigo herpetiformis is very rare, and has so far hardly been observed anywhere else than in Vienna. Nearly all the patients have been pregnant women, and in one or two there have been uterine complications. These facts would seem to show that the cause of the affection is often in some way connected with uterine disease. It would thus appear to be a reflex neurosis analogous to herpes gestationis, hysterical pemphigus, etc. Kaposi himself appears to be not altogether disinclined to look upon it as an infectious disease.<sup>2</sup>

It must be admitted that impetigo herpetiformis, as described by Kaposi, is a disease entirely distinct from either dermatitis herpetiformis or herpes gestationis; and Duhring himself, who formerly maintained that they were identical, some time ago acknowledged that Kaposi's description of the disease had led him to change

<sup>1</sup> *Op. cit.*, p. 801.

<sup>2</sup> *Op. cit.*, p. 803.

his view on that point.<sup>1</sup> Besnier<sup>2</sup> thinks that impetigo herpetiformis is not so much a definite pathological entity as a group of closely allied affections. The feature common to these is the formation of vesicles in groups, which quickly become pustules and spread at the circumference while healing in the centre. In this way neighbouring lesions unite and thus cover large areas. In their evolution the lesions assume at different stages an eczematous, ulcerative, vegetative, or papillomatous aspect. He thinks it probable that visceral changes are present in fatal cases. In short, Besnier looks upon impetigo herpetiformis as an expression covering multiple affections of septicæmic type, or reflex lesions leading to trophic changes.

Impetigo herpetiformis is very refractory to **treatment**. All that can be done is to relieve the local symptoms by continuous baths and cooling applications, and to support the patient's strength.

**Cheiopompholyx**,<sup>3</sup> or dysidrosis, is characterised by an eruption consisting of vesicles symmetrically distributed on the extremities. The feet sometimes escape, but the hands are always attacked. The affection begins with subjective sensations of burning and itching, quickly followed by the appearance of numerous tiny vesicles deeply embedded in the skin, and showing through the epidermis like boiled sago grains. Their appearance is accompanied by increase of the itching. As they become more prominent on the surface they run together and form large irregular bullæ containing clear fluid. These show little tendency to burst, but become

<sup>1</sup> See his letter to M. Brocq, which was read at the International Congress of Dermatology in Paris in 1889; *Comptes-Rendus*, Paris, 1890, p. 183.

<sup>2</sup> French translation of Kaposi, Paris, 1891, vol. i., p. 803.

<sup>3</sup> As the disease usually affects the feet as well as the hands, "acropompholyx" would be a more accurate designation than "cheiopompholyx."

more and more distended for a time ; and then, as the contents become opaque and thicken, they begin to shrink, and finally form dense, dark brown crusts. When these are thrown off, the surface of the skin underneath is found smooth, red, dry, and exquisitely tender. The itching sometimes ceases when the bullæ are fully developed, as if some irritant substance had been thereby eliminated from the skin. When the bullæ are pricked, the liquid which issues is clear, and neutral or alkaline in reaction. The first tiny vesicles may usually be seen grouped around the orifices of the sweat-ducts. The eruption comes out along the sides and palmar aspects of the fingers, and in the interdigital spaces. In severe cases the whole surface of the hands may be involved. Sometimes an eczematoid eruption spreads up the arms from the hands, or may develop at distant parts, allying the disease with some form of eczema, with which many authorities consider it identical. Its pathological anatomy on the whole rather supports this view. The duration of the disease is about a fortnight, but recurrence is almost certain, and may occur at such short intervals as to make the disease all but continuous. Repeated attacks at the same parts leave the skin discoloured, harsh, thick, and dry, and some time elapses before this inconvenient covering, which deadens sensation and hinders the movements of the fingers, is shed.

The disease was named "dysidrosis" by Tilbury Fox, on the supposition that the process was primarily set up by retention of the sweat secretion. Crocker regards the process as one of hyperidrosis rather than dysidrosis, and thinks that excessive sweating is a predisposing condition. Later observers have shown that the disease is not intimately connected with the sweat glands, and some regard it as a vesicular eczema modified by the anatomical peculiarities of the part. There can be little doubt that the disease

is, in the first instance, a vaso-motor neurosis, and it is in harmony with the notion of its nervous origin that it is much more common in women than in men, and that its especial victims are young women of neurotic temperament or who have been exposed to worry or excitement. So strongly marked, indeed, is the neurotic character of the affection, that in many cases the slightest unpleasant emotion or mental agitation is sufficient to bring on an attack. Among the immediate causes of the disease, next to nervous shock, is temperature. The affection is more common in spring and summer than in the colder seasons, and hot weather has a marked effect in determining an attack or aggravating an already existing one. Artificial heat acts exactly in the same way, and exposure of the hands to the fire, as in cooking, often induces an attack in those subject to the complaint.<sup>1</sup>

Winkelried Williams<sup>2</sup> has shown that the anatomical life-history of the cheiropompholyx vesicle is as follows :—(1) A mild inflammatory action in the papillary layer of the corium results in an exudation of serum, which finds its way between the rete cells and leads to their compression, degeneration, and destruction. (2) Vesicles are thus formed which receive fresh fluid, and so increase in size. (3) The vesicular contents dry up, fresh epithelium forms below, and the superficial together with the dried contents of the vesicles are thrown off. The anatomical characters of cheiropompholyx thus closely resemble those of vesicular eczema.

To sum up: the distinctive features of cheiropompholyx are the limitation of the eruption to the extremities, and particularly to the hands; the ten-

<sup>1</sup> Unna ("Histopathology," p. 179) has found a bacillus like the *B. tuberculosis*, but stouter in all sections, which he believes to be pathogenic.

<sup>2</sup> *Brit. Journ. Derm.*, vol. iii., 1891, p. 303 *et seq.*

dency of the vesicles to run together and form bullæ which seldom rupture spontaneously; the tendency to recovery, followed by repeated recurrence, and the constant association of the disease with the summer season. The co-existence of all these points suffices to identify the disease. There can seldom be any difficulty in diagnosis. The absence of "weeping" differentiates the disease from eczema; the formation of bullæ by coalescence of vesicles, from pemphigus; and the size, situation, and duration of the vesicles, from sudamina.

The prognosis is always good as far as recovery from any given attack is concerned, but the great probability of recurrence must always be borne in mind.

**Treatment.**—In cheiropompholyx the local lesions must be treated on the lines laid down for pruritus. Constitutional treatment is almost always required, tonics in the form of *iron* and *arsenic* separately or in combination, *quinine* and *strychnine*, being especially indicated. Violent exercise, alcohol in excess, and anything tending to promote sweating, must be avoided. Dietetic errors must be corrected and digestive disturbance rectified. Change of scene and mental diversion are often important factors in the treatment.

**Pemphigus** may be defined as a condition characterised by the eruption of bullæ on previously healthy skin. Fresh crops of bullæ come out, not only on the skin, but sometimes on one or other of the mucous membranes, either continuously or at varying intervals of time. Many varieties of pemphigus have been enumerated, but they can all be classified under one of the three following heads: (1) A type in which the bullæ follow throughout a definite line of evolution and finally disappear without causing any loss of substance in the epidermis. To this group, the characteristic feature of which is the formation of bullæ, is applied the name of



“pemphigus vulgaris.” (2) A type in which the epidermis tends to become detached in large sheets, leaving the deeper layer exposed over an area which afterwards enlarges circumferentially. To this process, in which the essential phenomenon is exfoliation, the term *pemphigus foliaceus* is applied. (3) Pemphigus vegetans.

Another form of disease which perhaps should be grouped under this heading has been described by various authors under the name of **epidermolysis bullosa**.<sup>1</sup> In this group the affection seems to be in nearly every case *congenital*, and to be associated not only with an insufficient resisting power in the skin, but with a general tendency to non-development throughout the body. On the slightest injury to the cutis superficial bullæ of varying size arise, frequently with blood-stained contents. There is still some question whether the bullæ are invariably the result of trauma, or whether a tendency to pemphigus does not co-exist. By the repeated formation of these very superficial bullæ the skin gradually assumes a peculiar papery, atrophied appearance, which is characteristic. Bukovsky<sup>2</sup> reports a case which he studied in Janovsky's clinic. He believes the bullæ to be due simply to loss of continuity of the epidermis and corium, caused by traumatism, and maintains that the susceptibility to injury is the result of a marked difference in the contractility of epidermis and corium. Near the scars in this case were milium-like bodies, which were found to be retention-cysts of the sweat-ducts, of which the orifices had been blocked by the healing of the bullæ. Petrini de Galatz<sup>3</sup> describes in detail three cases in which, though they were congenital,

<sup>1</sup> See article by Wallace Beatty, *Brit. Journ. Derm.*, vol. ix., p. 301, Aug., 1897.

<sup>2</sup> *Arch. f. Derm. u. Syph.*, Nov., 1903, vol. lxxvii., p. 163.

<sup>3</sup> *Ann. de Derm. u. de Syph.*, Aug. and Sept., 1906 (abstr. in *Brit. Journ. Derm.*, vol. xix., Sept., 1907).



there was no heredity, nor was there traumatism. He maintains that the disease is a definite dermatosis, with dystrophy for an essential feature, and suggests that the cause may be found in some alteration of the peripheral nervous system at the site of the lesions. The epidermal cysts, he asserts, are due to the transformation of epidermic cells, in which the central cells of the mass break down and are absorbed. In a case which came under the notice of Winkelried Williams<sup>1</sup> there was evidence of ante-natal development of the condition, there being at birth firm adhesions of various parts of the body, which had to be separated by operation. About two weeks after birth bullæ were noticed on the arms and legs in the neighbourhood of the raw surfaces left by the incisions, and bullæ leaving excoriations continued to be raised. Drs. Engman and Mook,<sup>2</sup> from the histology of two cases, tentatively suggest that the affection may be due to absence, hereditary, congenital, or acquired, of the elastic tissue in the papillary and sub-papillary regions of the derma. The disease appears to be incurable, but much good may be done by protecting patients from deleterious influences and attending carefully to their nutrition. From neglect of these measures much discomfort and even danger to life may arise.<sup>3</sup>

**Pemphigus vulgaris.**—The onset of pemphigus vulgaris is usually marked, especially in children and in elderly persons, by greater or less febrile disorder, and the appearance of the eruption is accompanied by itching and burning. The bullæ quickly spring up, either on small erythematous patches or on unaltered skin; they are fully developed in a few hours, and as a rule they stand out on the skin as hemispherical blebs, with-

<sup>1</sup> *Brit. Journ. Derm.*, vol. xix., p. 12, Jan., 1907.

<sup>2</sup> *Trans. of Amer. Derm. Assoc.*, 1905, p. 176.

<sup>3</sup> Cf. Henry H. Whitehouse: "Twentieth Century Practice of Medicine," vol. v., p. 376.

out any inflammatory areola around their base. They are scattered about irregularly, or arranged more or less symmetrically on the limbs, trunk, or lower part of the face. Sometimes they are set so close together as almost to deserve to be called "confluent," and in rare cases they actually do run together. Occasionally they are grouped around bullæ of older date so as to form circles, which, as they in turn gradually disappear, leave irregular wavy lines. The contents of the bullæ are at first clear and transparent, but they soon become opaque; the bullæ then dry up, forming brownish-yellow scabs. If the surface of skin covered by these scabs is extensive, they give rise to a disagreeable feeling of tension, and excoriation may be caused by their premature separation. When the scabs fall off naturally, the surface underneath is seen to be covered with newly-formed epidermis, which is at first purple in colour, but gradually turns brown and remains pigmented for some weeks. In some instances the ulcers under the scabs become covered with fibrinous exudation, and leave more or less scarring.

Pemphigus also sometimes attacks mucous membranes. I have seen a case in which the mouth and the conjunctiva were affected, the process being accompanied by "essential shrinking" of the latter.<sup>1</sup> (Fig. 2.)

The life-history of each bulla extends only over a few days; but as successive crops of them come out, more frequent and abundant in proportion to the



Fig. 2.—"Essential Shrinking" of Conjunctiva connected with Pemphigus of Skin and Mucous Membrane of Mouth.

<sup>1</sup> See a report of the case by the author and Leslie Roberts (*Brit. Journ. Derm.*, April, 1889), where a bibliography of conjunctival pemphigus is given.

severity of the attack, the disease may last for several months. In certain cases hæmorrhage takes place into the interior of the bullæ, the contents of which are then pink, red, or blackish, according to the amount of blood effused. In other cases the bullæ may end in sloughing and more or less extensive gangrene of the surrounding skin. These, however, are not varieties of the disease, but pathological accidents. Sometimes the general health is little, if at all, affected; but in persons of feeble constitution the discomfort of the lesions and the consequent insomnia cause depression, loss of strength, exhaustion, and even death. When the disease is on the decline the bullæ no longer come out in crops, but singly here and there; the fever ceases, sleep and appetite return, and the health is rapidly restored. There may be no recurrence after a first attack, but it more often happens that after some months, or even a year, the patient is again attacked, perhaps more than once. The disease may then definitively cease from troubling; or, on the other hand, it may get so firm a hold on the patient that it cannot be shaken off, attacks following each other at such short intervals as to make the affection practically continuous. In such cases the whole body may be invaded by the lesions, to the grievous detriment of the patient's health, and sooner or later to the destruction of his life; or the process, though persistent, may be mild, the bullæ, though never altogether absent, being few and far between. These "sporadic" (if the term may be allowed) bullæ are apt to select parts where the circulation is sluggish (extremities, nose, etc.) for their appearance.

Though, as a rule, essentially chronic in its course, pemphigus is occasionally so acute in its manifestations as to warrant the term "malignant" which has been applied to such cases. The bullæ form in enor-

mous numbers, crop following crop so closely that there is no remission of the process, which is accompanied by high fever and rapid wasting, and ends in death in two or three weeks or even a few days. This form of the disease is usually seen in young children, and must not be confounded with syphilitic pemphigus. Pernet and Bulloch have recorded<sup>1</sup> a number of cases of acute pemphigus which followed wounds of the hands in butchers, and mostly ended fatally. A similar case has been observed by Wilfred Hadley and Bulloch.<sup>2</sup> In all these cases diplococci were found by Bulloch in the fluid of the bullæ.

The so-called **pemphigus neonatorum** is an affection met with in new-born infants, characterised by the eruption of bullæ on the thighs, buttocks, face, and other parts, accompanied by greater or less constitutional disturbance. The children are free from syphilitic taint, and are often well nourished, but have been exposed to septic infection from insanitary surroundings. In some instances the disease occurs in the form of a limited epidemic, and a particular midwife has occasionally appeared to be the means of conveying the disease. Dr. Maguire<sup>3</sup> describes an epidemic of the acute form of the affection at Richmond, Surrey, in 1902, in which there were strong grounds for the belief that the transmitting agency was the midwife to whose practice the cases were confined. The epidemic, he concluded, was due to infection with the *Staphylococcus pyogenes aureus*, but the source of the contagion, whether the pustular acneiform eruption from which the midwife suffered, or the insanitary surroundings of the first case, was not clear. Though appearing chiefly in the newly-born, and fatal only to them, the malady also

<sup>1</sup> *Brit. Journ. Derm.*, May and June, 1896.

<sup>2</sup> *Lancet*, May 6, 1899.

<sup>3</sup> *Brit. Journ. Derm.*, Dec., 1903, p. 427.

attacked older children and adults. Adamson,<sup>1</sup> who maintains that pemphigus neonatorum is an infantile form of the impetigo contagiosa of Tilbury Fox, supposes that the *Staphylococcus pyogenes aureus* is only a secondary infection, and that the *Streptococcus pyogenes* will prove to be the primary cause.

Pemphigus neonatorum is not, as a rule, of any gravity, but occasionally it assumes a malignant type, the contents of the bullæ being dark and fetid, and gangrenous ulceration taking place, with symptoms of infection generalised, ending in death in ten or twelve days (Tilbury Fox). Paul Richter<sup>2</sup> concludes that in some cases the affection is congenital, and that when it so originates the prognosis is unfavourable. The disease which by Ritter and others is styled *dermatitis ex-foliativa neonatorum* is regarded by Richter and Hedinger as a specially malignant variety of pemphigus neonatorum.<sup>3</sup>

**Pemphigus foliaceus.**—This affection was first described by Cazenave, by whose name it is sometimes called. In pemphigus foliaceus the bullæ are not rounded and tense like those of pemphigus vulgaris, but flattened and flaccid. They break easily, and the affected surface has a blistered appearance. The bullæ form yellowish crusts, and as the disease spreads scales of considerable size are formed. These, as they become detached, leave red excoriated areas on which new layers of epidermis are formed, only to be quickly shed again or brushed away mechanically. After a period of months or years the whole cutaneous surface may be invaded, the skin readily ulcerates wherever it is subjected to any pressure, the face becomes disfigured by cicatricial contraction, causing ectropion, etc. The patient loses flesh,

<sup>1</sup> *Brit. Journ. Derm.*, Dec., 1903, p. 447.

<sup>2</sup> *Derm. Zeitschr.*, Bd. viii., Hft. 5 and 6.

<sup>3</sup> *Arch. f. Derm. u. Syph.*, July, 1906, p. 349.

and as the disease advances the febrile symptoms and constitutional disorder become intensified; he cannot move or lie down without pain, and his condition is one of great misery. Pemphigus foliaceus generally ends in death. The affection may begin and run its whole course as an independent disease, or it may follow long-standing pemphigus vulgaris, when the eruption has become continuous and widely distributed, and cachexia has been induced.

Both in pemphigus vulgaris and pemphigus foliaceus the mucous membrane of the mouth, pharynx, and larynx may become the seat of eruption. If bullæ form on the epiglottis there may be danger of suffocation. If the bullæ on the mucous membrane follow the same course as in pemphigus foliaceus of the skin, swallowing becomes impossible, the voice is lost, and the respiration may be embarrassed. In such circumstances the patient is in a condition of the gravest danger. The lesions of pemphigus may extend far into the lower air-passages, and in the last stage of pemphigus foliaceus the trachea and bronchi are often invaded.

Leredde<sup>1</sup> considers pemphigus foliaceus as essentially a blood disease, the cutaneous manifestations being secondary, both the blood changes and the skin lesions depending on an affection of the bone marrow set up by toxic bodies of one kind or another.

**Pemphigus vegetans**, a form described by Neumann,<sup>2</sup> presents features so peculiar as almost to entitle it to rank as a distinct disease. Its only relation with ordinary pemphigus is the fact that the eruption is at first bullous in character. The initial lesions are bullæ of the size of lentils, which gradually distend the epidermis

<sup>1</sup> *Ann. de Derm. et de Syph.*, vol. x., July, 1899 (abstr. in *Brit. Journ. Derm.*, 1899, p. 406).

<sup>2</sup> Congrès Intern. de Dermatol. et de Syph., tenu à Paris en 1889; *Comptes-Rendus*, Paris, 1890, p. 81.



with the colourless exudation which they contain. Excoriation takes place, and in four or five days the centre of the denuded surface is occupied by a pale white protuberance which grows rapidly in height and width, so that in a short time warty or granulation-like excrescences are formed. These are at first bounded by a circle of excoriation, later by bullæ, which form at the circumference. The surface of the patches is uneven, slightly raised, flesh-coloured, and discharges a thin, foul-smelling secretion. The discharge, as it dries, forms a thin crust, which can easily be stripped off, when an excrescence, partly covered with a thin stratum of epidermis, is seen. The first points attacked are the labia majora and minora; next come the mouth and lips; then the skin, axillæ, hands, feet, inner parts of thighs, face (where the eruption joins that of the lips and mouth). The mucous membrane becomes dry and fissured, and swallowing is so painful that the patient does not care to attempt it. On the skin the bullæ, instead of drying up into scabs, break down and form excoriations, upon which, in parts where the integument is folded on itself (armpits, junction of thighs with perineum), papillary excrescences sprout up. Fresh crops of bullæ continue to come out, the epidermis strips off in large sheets, leaving the papillary layer exposed, as in a burn of the second degree. The diseased surface is dirty, wet, and warty. The secretion decomposes rapidly and is horribly offensive. Finally, superficial gangrene takes place, and the patient dies exhausted by his sufferings and by want of food, or of some intercurrent disease (nephritis, œdema of the lungs, etc.) a few months after the first appearance of the eruption. The disease is rare. Neumann himself in 1889 had seen only fourteen cases, and up to 1906 not more than fifty-eight cases had been recorded. Crocker met with a typical example in 1887, which he considered at that time to be the only one



observed in England,<sup>1</sup> though he thought that some cases of "a rare pustulating disease of the skin and mucous membranes," allied to foot-and-mouth disease, reported by Hutchinson, may have been examples of a mild variety of pemphigus vegetans. Dr. Allan Jamieson<sup>2</sup> describes a case in which Professor Welsh discovered, *post-mortem*, in the spinal cord, and also, though less advanced, in the sympathetic ganglia and the cerebral cortex, nerve-cell changes representing a primary degeneration. In a case reported by Hamburger and Rubel<sup>3</sup> all the internal organs except the lungs were found to be healthy. Professor Winfield's analysis of the fifty-eight cases recorded up to 1906 shows that the disease occurs most frequently between the thirty-fifth and forty-fifth years, and that females are more liable to it than males—thirty-one as against twenty-five.<sup>4</sup>

As to the **etiology** of pemphigus vulgaris nothing is known with certainty. New-born babes and young children are more liable to it than adults. It is not clear that sex has any influence, statistics collected by different observers giving contradictory results. It is occasionally hereditary. Kaposi cites the case of a patient whose mother, sister, and maternal uncle had been sufferers; several of the man's own children were also subjects of the disease. I have myself treated three members of the same family for pemphigus. The direct causation of the disease is doubtless some instability or over-excitability of the nervous system. Changes in the peripheral nerve-ends under the bullæ have been found in a few cases of pemphigus by Déjerine and others, and Weir-Mitchell has shown that bullous

<sup>1</sup> *Trans. R. Med.-Chir. Soc.*, lxxii. (with bibliography up to date).

<sup>2</sup> *Brit. Journ. Derm.*, Aug., 1902.

<sup>3</sup> *Johns Hopkins Hosp. Bull.*, April, 1903.

<sup>4</sup> *Trans. Amer. Derm. Assoc.*, 1906, p. 199.

eruptions sometimes follow injuries of the nerves, especially such as cause neuritis. In certain forms of nerve degeneration or irritation bullæ are apt to be induced along the course of the affected nerve trunks by heat, cold, or slight injury. The pemphigoid blebs which are a frequent accompaniment of leprosy are probably the result of direct irritation of the vaso-motor nerves by the leprotic infiltration. Bullous eruptions are also not uncommonly associated with sclerosis of the posterior columns of the cord. It is probable that pemphigus is, as Schwimmer suggested, a tropho-neurosis, but in the present state of knowledge no conclusive proof of this theory is obtainable. Some confirmation of the view just expressed as to the nervous origin of pemphigus is afforded by the fact that it is not infrequent in neurotic and hysterical subjects. According to Kaposi, in women the disease is occasionally associated with gestation, the eruption showing itself in the course of every pregnancy and disappearing after delivery. In such cases, however, it is probable that the affection is not true pemphigus, but the same as that already described under the name of "herpes gestationis," and therefore of the nature of dermatitis herpetiformis.

As regards the **pathology** of pemphigus, I have already expressed my belief that the process is of angio-neurotic nature. The characteristic bulla is the result of inflammatory exudation from the vessels of the papillary layer. Crocker states that in the case of a very large bulla which he examined the fluid poured out had stretched the lower rete cells until they were separated from the corium ; and as the process continued the lower layers were destroyed and the upper compressed until, at the centre, the roof was formed by the horny layer and about the upper two-thirds of the rete, with here and there a fragment of a sweat duct or hair follicle depending. At the border the lower stretched cells of the

rete were still present. The fibres of the corium below the bulla were compressed, and there was free cell infiltration of the upper layers.

The liquid contained in pemphigus bullæ has most of the characters of blood serum. Even when it is clear, leucocytes may be found in it; and when it becomes opaque, pus-corpuscles and red blood-corpuscles abound in it. It is, as a rule, weakly alkaline in reaction. The eosinophile cells are as a rule present in great excess in the blood (*see* p. 138). Micro-organisms have been found in it and in the urine of the patients by Paul Gibier, and in the contents of the bullæ, in the urine, and in the blood by Spillmann. Demme found in the bullæ and in the blood diplococci from which he succeeded in making pure cultures. Similar organisms have, as already said, been found by Bulloch. Crocker found a few micrococci in recent bullæ, and under cultivation in peptonised gelatine minute bacilli developed. Almquist<sup>1</sup> found a coccus slightly resembling the staphylococcus in the bullæ in six cases of pemphigus neonatorum. Inoculation always produced typical pemphigus bullæ after a short period of incubation. In a case of pemphigus vegetans reported by Winfield<sup>2</sup> the *Bacillus pyocyaneus* was found in the bleb contents, in the blood, and (*post mortem*) in blood from the right auricle. It is obvious that, in view of the numerous micro-organisms of the most diverse kinds which are found on the epidermis under normal conditions, all observations on the bacteriology of skin lesions must be received with greater caution than those relating to any other part of the body. The urine of patients suffering from pemphigus shows a diminution in the normal amount of urea. Among the complications of pemphigus are Bright's

<sup>1</sup> *Arch. f. Derm. u. Syph.*, No. 2, 1892.

<sup>2</sup> *Trans. Amer. Derm. Assoc.*, 1906, p. 199.

disease, pneumonia, tuberculosis, and ulceration of the intestinal follicles.

The **diagnosis** of **pemphigus vulgaris** seldom presents much difficulty. The presence of the characteristic bullæ, and of scabs and pigmented spots representing bullæ of earlier formation, and the absence of pustules, erythematous patches, and other lesions, taken together with the history of successive crops of exactly similar eruptions, are points which will in most cases suffice to identify the disease. Pemphigus may sometimes be confounded with bullous forms of urticaria and erythema. In both these conditions, however, there are other lesions besides the bullæ; moreover, except in pemphigus, the bulla is more adventitious than a primary lesion—implanted on a wheal (as in urticaria), or on a raised red plateau in a setting of vesicles (as in erythema multiforme), not rising out of healthy skin, which is the pathognomic feature of pemphigus. From dermatitis herpetiformis, again, pemphigus is distinguished by the uniformity of the lesion. *Pemphigus foliaceus* may be mistaken for eczema rubrum and pityriasis rubra, and the diagnosis can sometimes be made only by taking into account the history of the case and by carefully watching its course. Thus in eczema the scales are not so large as in pemphigus foliaceus, nor is the disease often universal. In pityriasis rubra there are no bullæ, and the surface is dry. Moreover, the scales are smaller and thinner than in pemphigus foliaceus. In all forms of pemphigus, and especially in *pemphigus vegetans*, one of the first things to be done is to exclude syphilis. Neumann gives the following three points of distinction:—(1) In pemphigus vegetans the excrescences are always surrounded by a zone of bullæ, while condylomata have an infiltrated border. (2) In pemphigus vegetans the surface is excoriated and warty; in condylomata it is even and smooth. (3) The sequence

of events and concomitant circumstances in the two cases, condylomata being almost invariably the consequence of an acute process, and being accompanied and followed by other signs of syphilis ; moreover, if left to themselves they finally tend to involution. In pemphigus foliaceus, on the other hand, the lesions continue to multiply, and the disease goes steadily from bad to worse.

In pemphigus vulgaris the **prognosis** is, as a rule, favourable as to life, though recurrence is only too likely, and it is impossible to say how often this may take place. In acute cases there is nearly always a greater or less amount of danger, especially in young children or old people. The longer the disease lasts the less hopeful is the prospect. One element of danger in very chronic cases is that the process may pass into pemphigus foliaceus, which is always fatal, though life may be dragged on for years. As to pemphigus vegetans, Neumann says that in no disease is the prognosis so gloomy : " A small excoriation in the axilla, one or two bullæ on the mucous membrane of the lips, are often sufficient grounds for prognosticating death, irrevocably impending, in a few months." <sup>1</sup> Crocker, however, thinks that early treatment before the skin is much involved offers some chance of recovery.

In the **treatment** of pemphigus the chief reliance must be placed on the internal administration of *arsenic*, which is more of a specific in this than in any other skin affection. It must not, however, be looked on as an absolutely unfailing remedy. It should be given in the form of *Fowler's solution*, beginning with a dose of *three drops, gradually increased to five, seven, eight, ten, and even larger doses, three times a day*. When arsenic fails, *quinine* is often beneficial ; in other cases *opium* is the most efficient internal remedy. *Phosphorus*,

<sup>1</sup> Neumann, *loc. cit.*, p. 82.

*ichthyol*, and *belladonna* are all occasionally useful. The local lesions must be treated on general principles, the itching being relieved by one or other of the methods already described. If the bullæ are very large and tense they may be pricked with a sterilised needle, and afterwards dressed with *boric acid ointment* or *carron oil*; if the skin around them be much inflamed, cooling ointments will give relief. In pemphigus foliaceus continuous *emollient alkaline* or *sulphurated potassium baths* ease pain, and often prevent exhaustion by enabling the patient to sleep. Kaposi kept a patient under this treatment with great benefit for more than four years, during which—without counting shorter periods—he spent eight months day and night in the bath. Fever and other constitutional disturbances accompanying the skin affection must be treated on general principles. A leading indication in all forms of pemphigus, especially in pemphigus foliaceus, is to support the strength by suitable food.

**Herpes** may be taken as the type of a skin lesion of nervous origin, as its connection with certain abnormal conditions of the nerves supplying the affected area can be clearly established. The term “herpes,” in strictness, denotes merely a particular lesion which may be an incidental phenomenon in a variety of diseases, or may itself be the expression of a definite morbid state, or, as some (Erb, Landouzy, Brocq, Wasiliewski) believe, the exanthem of a specific fever.

The lesion itself is a cluster of transparent vesicles varying in size from a pin’s head to a pea, and in number from two or three to twenty or more, seated on an erythematous patch, and surrounded by a narrow red zone. The eruption is almost always preceded by a feeling of heat and tension, sometimes itching, in the part about to be attacked. The life-history of the individual lesion comprises four stages: (1) a slightly red spot appears



on the skin ; (2) soon serous effusion takes place under the epidermis, and vesicles are formed ; (3) the vesicles become opaque—occasionally purulent—shrink up, and form yellowish-brown crusts which, (4) after some days, become detached, usually leaving no scar, but a brownish stain which slowly fades and disappears. These four phases in the evolution of the lesion are named by Brocq *congestive, vesicating, desiccating, and macular*. The whole process occupies from a week to a fortnight. On mucous membranes the lesion runs a somewhat different course. Owing to the macerating action of the secretions the vesicle is quickly reduced to a whitish pulp, which, when the eruption is extensive, gives the parts the appearance of being covered with false membrane. When the sodden epithelium becomes detached, roundish excoriations are seen underneath. These may be scattered irregularly about, or, intersecting each other, may form largish ulcers with wavy borders. Healing, as a rule, takes place without scarring.

Two distinct types of herpes may be recognised : First, one which I propose to call *irritative* or *symptomatic* herpes ; and secondly, a definite morbid process, of which a herpetic eruption following certain definite lines of distribution is the expression—*herpes zoster*, or *zona*.

**Irritative herpes** chiefly affects the face and the genital organs—hence the *herpes facialis*, or *labialis*, and *progenitalis* (or, as I prefer, with Besnier, to call it, *genitalis*) of authors. The process in both these situations is essentially the same ; the only difference between them is that the lesions, and also to some extent the symptoms, are modified by the anatomical relations and the functions of the parts affected. In the face the eruption most frequently comes out on the lip, especially the lower, and about the mouth ; but any part of the face below the forehead may be invaded. Nor are



the conjunctivæ and the mucous membrane of the mouth and throat exempt from attack. The lesions pass through the four stages of evolution which have already been described. The attack usually occurs in the course of some febrile disorder—catarrh of the respiratory passages, pneumonia, typhoid fever, cerebro-spinal meningitis, malaria—and is generally ushered in by a sensation of chill, or even actual shivering. Herpes facialis used to be considered a sign of “crisis” in acute febrile diseases, and in the case of pneumonia in particular it was looked upon as of good augury for the favourable issue of the illness. It is now, however, regarded as a simple incident in the general morbid process without any special significance. It is, in short, merely *symptomatic* of feverishness with shivering. In some persons herpes is produced by local irritation; hence the frequency with which the upper lip is the seat of an eruption after an attack of nasal catarrh. In many persons herpes of the lip shows a marked tendency to recurrence.

Herpes affects the genitals in both sexes, the favourite points of attack in men being the prepuce, especially its internal surface, the sulcus, the glans, and the meatus; and in women the labia and the cervix uteri. The symptoms are in proportion to the severity of the lesions. In men the eruption is usually discrete, and, with the exception of the burning and itching which it causes, but little inconvenience is felt by the patient. If neglected, however, and especially if irritated, as by frequent coitus or the application of caustics, the ulceration may spread, and the glands in the groin may become enlarged and painful. In women the eruption is apt to become confluent, and in some cases not only the vulva, but the perineum, the inside of the thighs, and the mons veneris, may be invaded. The labia majora and minora and the mucous lining of the vagina become

immensely swollen, and covered with macerated epithelium, which, as it separates, leaves extensive excoriations. There is an offensive muco-purulent discharge, and the pain on movement is so great that the patient can hardly walk. The itching and burning are almost unbearable. Enlargement of the inguinal glands is a frequent complication.

Genital herpes is more common in men than in women. It is sometimes symptomatic, occurring in the course of some febrile disorder, such as pneumonia; but most commonly it appears to be the result of local irritation. Ravaut and Dané<sup>1</sup> found that in a number of cases in which it was associated with nervous symptoms, there was modification of the cerebro-spinal fluid. In men the eruption is sometimes preceded by a gonorrhœa or a venereal sore, and it is apt to recur at frequent intervals after sexual intercourse (especially, according to Brocq, with different women), the passage of an instrument into the urethra, or other local irritation, or after any unusual fatigue, or even over-eating. The tendency to recurrence may last for years, but sometimes, as pointed out by Berkeley Hill, ceases under the alterative influence of a severe intercurrent illness. In women genital herpes is often brought on by the first attempts at sexual intercourse after marriage. It may also be the result of irritating discharges (leucorrhœa, gonorrhœa), or it may be related to the menstrual function.

On the face the affection may sometimes be mistaken for impetigo, but the acuteness of its course, its limited distribution, and the fact that it is not auto-inoculable, will serve to distinguish it. In genital herpes the diagnosis presents no difficulty if the case is seen before the characteristic vesicular eruption has become obscured by the violence of the inflammatory

<sup>1</sup> *Ann. de Derm. et de Syph.*, June, 1904, p. 481.

process. If ulceration is extensive, and especially if there be much suppuration, it may be impossible at first to distinguish genital herpes from soft sores. The latter, however, have a fouler base and excavate more deeply. Time will also help to clear up the question, the lesions of herpes disappearing, as a rule, in a few days, while soft sores are much slower in healing. If positive proof is required, the test of auto-inoculation may be applied. From true chancre genital herpes can usually be distinguished without difficulty by the absence of induration, the multiplicity, irregular form, and small size of the ulcers, and the intense burning and itching which they cause. It is not uncommon, however, according to Fournier, for a chancre to develop in the midst of a premonitory eruption of herpes.

**Herpes zoster.**—Herpes zoster, zona, or shingles, is an affection characterised by the eruption of clusters of vesicles seated on an erythematous base, not along the course of one or more peripheral nerves, as is still often taught, but in the region of distribution of one or more of the posterior spinal roots of the skin.<sup>1</sup> The intercostal variety of herpes zoster, being by far the most common, may conveniently be taken as a type in describing the disease. The appearance of the eruption is usually preceded by pain of neuralgic character and tenderness over the area of distribution of the nerve or nerves corresponding to the part of the surface about to be attacked. Sometimes there is also slight constitutional disturbance. The eruption always first appears at certain points, from which, in most cases, it spreads.

<sup>1</sup> Head, as the result of careful investigation ("On Disturbances of Sensation, with especial Reference to the Pain of Visceral Disease;" *Brain*, Parts 1 and 2, 1893), found that the areas occupied by the eruption of herpes zoster corresponded with those which become tender in visceral disturbances. See also Head's article in Allbutt's "System of Medicine."

However extensive the area involved may be, these points are always those where the affection is at its maximum intensity (Head). As a rule, though by no means invariably, the neuralgic pain ceases on the appearance of the eruption, but the lesions cause a good deal of smarting and tension, and there may be severe pain owing to neuritis of the implicated nerve. Children seldom suffer much pain; as a rule they complain more of itching. In old people, however, pain is often most persistent and severe. The eruption shows itself in the form of erythematous patches, which can be made to disappear on pressure. They are more or less oval in outline, with their long axis parallel to the underlying nerve. They come out in crops, beginning, as a rule, nearest the corresponding nerve centre, and are scattered at irregular intervals along the track of the nerve with which they are in relation, especially at the points where its twigs pierce the fascia, or are distributed in the skin. The number of lesions varies from two or three to twenty or thirty. The full development of the eruption generally occupies about a week. In a short time the surface of the red patches becomes studded with papules, which are quickly transformed into vesicles. These are grouped in clusters to the amount of about ten, or even twenty, on each patch. The vesicles are sometimes discrete, sometimes confluent, forming irregular bullæ; but the edge of the erythematous patch on which they rest is always visible as a red zone around the base of each cluster. Most of the lesions go through the regular phases of evolution already described; but some of them may abort, while others, instead of drying up in the ordinary way, may burst and give issue to a fluid which by-and-by forms yellowish or brownish crusts. Occasionally hæmorrhage takes place into the vesicles, and in such cases little ulcers are apt to form under them. These may give

rise to permanent scars, which are sometimes whiter than the surrounding skin, sometimes pigmented, or they may be white in the centre and pigmented at the circumference (Brocq). In some cases cheloid develops in the scars. It is well to make a point of warning patients as to the possibility of such lesions being left. In elderly or weakly subjects the lesions of herpes zoster sometimes assume a gangrenous character. Enlargement of the glands in the neighbourhood of the lesions is not uncommon.

The eruption is, in the great majority of cases, unilateral, the right side being far more often affected than the left. Sometimes it comes out on both sides, though at different levels. In certain rare cases, however, the lesions form a complete girdle round the body. Occasionally, while remaining unilateral, the lesions may overstep the middle line in front for one or two inches. James Mackenzie<sup>1</sup> has shown that the terminal branches from neighbouring intercostal nerves frequently cross each other.

All the different phases of herpes zoster may be seen in the same patient at one time. The total duration of the disease till the separation of the scabs is from a fortnight to three weeks, but in severe cases it may be much longer. One attack appears to confer immunity ; but this rule is not absolute, Kaposi having seen no fewer than eleven recurrences in a patient under his care.<sup>2</sup>

Herpes zoster, though most frequent on the trunk, does not spare any part of the body, though it is extremely rare below the knee. A case in which herpes zoster limited to the foot followed a twist of the ankle has

<sup>1</sup> " Herpes Zoster and the Limb Plexuses of Nerves," *Journ. of Path. and Bacter.*, Feb., 1893, p. 332 *et seq.*

<sup>2</sup> " *Maladies de la Peau* " : French translation by Besnier and Doyon, tome i., p. 443.

been recorded by Exley and Wardrop Griffith.<sup>1</sup> The process is everywhere the same, but on the head and limbs the lesions are distributed in more or less irregular lines, and have not the girdle character which is seen on the trunk. On the face the eruption follows the ramifications of the fifth nerve, especially the supra-orbital branch and the ophthalmic division. In the former the inner third of the frontal region is the favourite seat of the disease. The lesions extend upwards in vertical lines, or spread out fanwise from the supra-orbital foramen and extend on to the scalp. In ophthalmic zoster, especially when the nasal branch is implicated, severe pain around the orbit and photophobia are prominent symptoms, and eye lesions (conjunctivitis, keratitis, iritis) are usually caused, which in rare cases lead to permanent mischief (posterior synechiæ, deformity of the pupil, and even amblyopia and atrophy of the papilla). This variety of herpes zoster is also frequently followed by indelible scars. Among other parts liable to be the seat of herpes zoster may be mentioned the nape of the neck and the occiput, and the skin supplied by the various branches of the superior cervical plexus. The eruption in this case spreads over the scalp along the branches of the occipital nerve. The arm, the thigh, the buttock, and the genitals are also liable to be attacked; in fact, it may be said that wherever there are cutaneous nerves, there herpes zoster may break out. The musculo-spiral and sciatic nerves are sometimes affected. Zoster is, however, rare on the forearms and legs, and all but unknown on the hands and feet.

The affection is common at all ages, and there does not seem to be any marked difference in the relative proclivity of the two sexes. Nearly all authorities are agreed that chill may be an exciting cause of zoster, and the epidemics of the disease that have been reported

<sup>1</sup> *Med. Chronicle*, March, 1893, p. 366.



are probably to be explained by the influence of the weather. The cold probably causes neuritis, which in turn gives rise to zoster. Arsenic, which, according to Hutchinson, sometimes causes herpes zoster, no doubt acts in the same way. The association of the disease with croupous pneumonia, pleurisy, tuberculosis, cancerous and other tumours, syphilis, and various inflammatory lesions, may also be explained by the irritation to which the peripheral nerves, or their spinal roots or ganglia, are subjected when involved in such processes. In short, whatever causes neuritis—cold, injury, poison, or long-continued irritation—may also induce herpes zoster.

The lesion of the nerve may be in any part of its continuity, from its origin in the spinal cord to its peripheral end. Bärensprung<sup>1</sup> first demonstrated that in most cases of herpes zoster there is interstitial neuritis of the posterior ganglion and of the trunk of the nerve issuing therefrom, which is distributed to the affected area of the skin. In some cases the lesion is in the posterior spinal root between the cord and the ganglion, or in the posterior columns of the cord. Dubler<sup>2</sup> found zoster associated with peripheral neuritis without any trace of central disease; and cases have been reported (Curschmann, Eisenlohr) in which the disease was apparently caused by multiple neuromata in the course of the affected nerves without any central change. The lesion may be due to hæmorrhage as well as to inflammation. Herpes zoster sometimes occurs in association with locomotor ataxy. Willmott Evans<sup>3</sup> holds that in no inconsiderable number of cases a meningitis is the starting

<sup>1</sup> *Charité Annalen*, Bd. ix. 2; Bd. x. 1; Bd. xi. 2. Danielssen seems to have been the first to observe (in 1857) that in a case of intercostal zoster the corresponding nerve was greatly congested.

<sup>2</sup> *Virchow's Arch.*, May, 1884.

<sup>3</sup> *Brit. Journ. Derm.*, 1900, p. 83.



point of the herpetic eruption. In his experience it is rare in connection with tuberculous meningitis, but more frequent in the non-tuberculous basal meningitis of children. It also occurs as a consequence of meningitis from extension of disease of the middle ear. The characteristics of herpes zoster resulting from meningitis are, according to Willmott Evans, a tendency for the eruption to be bilateral and to be more persistent than usual. The fact that meningitic herpes is so often bilateral may, he thinks, account for the belief, so widespread among the public, that when the disease encircles the body it is fatal. He points out that the herpes arising from meningitis always corresponds to the distribution of a nerve root and not to the distribution of a nerve, except when they are practically identical, as in the dorsal region of the cord.

Wasiliewski<sup>1</sup> rejects the theory of the nervous origin of herpes zoster, on the ground that the clinical phenomena correspond closely with those of infectious fevers. His view is based on 274 cases gathered by collective investigation by the Medical Society of Thüringen. Wasiliewski thinks the distribution of the eruption is better explained by the blood stream than by nerve ramification. He points out that in some cases no nerve lesions can be found. Pfeiffer<sup>2</sup> has attempted to prove that the distribution of the lesions in herpes zoster is determined by the arterial supply; but, as pointed out by J. Mackenzie,<sup>3</sup> all the cases he gives show clearly the distribution of the eruption in regions supplied by definite spinal nerves.

The lesions of herpes zoster are produced by a

<sup>1</sup> "Herpes Zoster und dessen Einreihung unter die Infectiouskrankheiten," Jena, 1892.

<sup>2</sup> "Die Verbreitung des Herpes Zoster längs der Hautgebiete der Arterien," Jena, 1889.

<sup>3</sup> *Loc. cit.*, p. 339.

peculiar process of epithelial degeneration, known as ballooning, which is also seen in the epithelium of the rete in such diseases as variola, varicella, etc. The cells become rounded, lose their prickles, a vacuole appears in its centre, gradually becoming larger, swelling the cell and causing both protoplasm and nucleus to lose their distinctive staining reactions and to degenerate. At the same time considerable leucocytic exudation takes place into the papillæ, and the leucocytes ultimately escape into the epithelium between its degenerated cells. According to Haight, of New York, the nervous filaments going to the affected parts are profoundly altered. They are swollen, and their neurilemma is full of small nucleated cells. The connective tissue around the nerves is infiltrated with leucocytes, and the nerve tubes themselves are abnormal in appearance.

**Diagnosis.**—Herpes zoster has to be distinguished from eczema, erythema multiforme, dermatitis herpetiformis, and irritative herpes (herpes facialis and genitalis). From eczema it can, as a rule, easily be distinguished by the fact that the vesicles dry up and do not keep up a continuous “weeping,” and, moreover, are distributed in the area of a particular nervous supply. From erythema multiforme, dermatitis herpetiformis, and irritative herpes, zoster is clearly distinguished by its unilateral character and by the neuralgic pain which precedes and sometimes accompanies it. The history is also an important diagnostic point, zoster, as has been said, being a disease which attacks a person only once. About the genitals it may not be easy to distinguish zoster from irritative herpes. The presence of pain of a neuralgic character is, however, a certain sign that it is the former we have to deal with.

Both in irritative herpes and in zoster the **prognosis** is favourable. The disease runs a regular course, and tends to spontaneous recovery in from a fortnight

to a month. If ulceration has been severe, and especially if gangrene has occurred, the lesion will take a considerable time to heal. Weakly people, particularly if advanced in years, may be exhausted by the severity of the process and the pain which accompanies the eruption and may persist long after its disappearance. In a case of zoster of the ophthalmic division death has been known to occur as the result of embolism of the ophthalmic vein (Brocq). Impairment of vision has also been known to follow this variety of zoster. Genital herpes may recur again and again if irritation is kept up; but patients suffering from zoster may be comforted with the assurance that it is practically certain that they will not be troubled by the disease again.

In irritative herpes the only **treatment** usually required is the application of soothing and anti-pruritic lotions or ointments, or protection of the affected surface by sprinkling with powder (*oxide of zinc, starch, subnitrate of bismuth, etc.*), or muslin bags. When the genitals are the seat of the eruption the parts must be kept scrupulously clean, and the surfaces should be kept apart with a piece of lint steeped in *boric acid* or *calamine lotion*. *Black wash* is a particularly useful application in genital herpes. If the patient be of gouty constitution, appropriate medication will be required.

In the treatment of herpes zoster the chief indication is the relief of pain, which is frequently acute. For this purpose *menthol* is often useful, but *subcutaneous injections of morphine* may sometimes be needful. It is important to protect the lesions from friction and to keep the parts warm; they should be dusted with a *protective powder*, such as *oxide of zinc and bismuth, with the addition of a small quantity of morphia, if necessary*; they should then be covered with a thick layer of cotton-wool. Internally, both *iodide of potassium* and *anti-pyrin* in doses of *ten to fifteen grains* are useful in

relieving the neuralgic pain, and tonics such as *quinine*, *iron*, *strychnine*, *etc.*, are generally beneficial. If the patient is in a low condition of health, *cod-liver oil* and feeding up are indicated. If the pain is very severe, the application of the continuous current along the course of the nerve is often most useful. Division, stretching, or resection of the nerve has been known to relieve the pain in severe old-standing cases affecting the supra-orbital nerve.

## CHAPTER X

### AFFECTIONS OF THE SKIN DEPENDENT ON NERVE DISORDER (*concluded*)

SCLERODERMIA—MORPHŒA — LICHEN — POROKERATOSIS  
—PARAKERATOSIS VARIEGATA—PITYRIASIS RUBRA  
PILARIS—CONGENITAL ICHTHYOSIFORM ERYTHRO-  
DERMIA—LEUCODERMIA—RAYNAUD'S DISEASE—  
DERMATITIS REPENS—ERYTHEMA SERPENS—DIA-  
BETIC GANGRENE—"HYSTERICAL" GANGRENE—  
GLOSSY SKIN—ATROPHY OF THE SKIN—CHARCOT'S  
BED-SORE—TROPHIC ULCERS—MORVAN'S DISEASE  
—SYRINGOMYELIA—ŒDEMA

**Sclerodermia** is a disease characterised by harden-  
ing of the skin, either diffuse or circumscribed. The  
latter condition is usually known as morphœa<sup>1</sup> (p. 178).

Diffuse sclerodermia is very rare. It occurs in two  
forms — as an infiltration and as an atrophy of the skin.  
In either case the affection often follows chill, and is  
sometimes ushered in by pains in the joints. A large  
part or the whole of the skin may be affected almost  
suddenly, or the disease may spread so slowly that it

<sup>1</sup> As has been shown by Colcott Fox, in an interesting paper  
entitled "Note on the History of Sclerodermia in England"  
(*Brit. Journ. Derm.*, 1892, p. 101), what is now known as sclero-  
dermia was described by Willan under the name of "ichthyosis  
cornea," by Addison under that of "true cheloid," by Wilson  
and others under that of "morphœa," and by Gibert under  
that of "*lèpre vitilige*." Much light has been thrown on the  
nature and pathology of the condition by Crocker, whose descrip-  
tion of it has mainly been followed here.

is some time before it is noticed. Some part of the upper half of the body is, as a rule, first attacked, and the limit of the disease is often indicated by a line of demarcation invisible to the eye but faintly perceptible to the touch. The distribution is always symmetrical. The affected skin becomes rigid, tense, and hard, like that of a frozen corpse, but without the coldness, its temperature being only a degree or two below normal (Crocker). It does not pit, nor can it be pinched up; the joints which it covers are immobilised, as if swathed in a stiffened bandage; the features are drawn, and the face becomes fixed into an expressionless mask; the chest walls are so tightly bound that breathing is seriously hindered. Sometimes the mucous membrane (mouth, pharynx, larynx, vagina) is attacked. At first sight the skin often does not seem to be much altered in appearance, but it is whiter than normal, and, on looking closely at it, the natural lines are seen to be obliterated. Erythematous patches, with telangiectases and mottling from scattered pigmentation of varying hue, are often present. Sensation is usually unaltered. The skin is dry, owing to diminution or suppression of the sweat and sebaceous secretion, and itching is sometimes troublesome. The general health is often not appreciably affected, but the patients are extremely sensitive to cold.

In the atrophic form the shrinking of the skin is always preceded by an œdematous stage, in which pitting is produced with some difficulty, as if the finger were pressed into a bladder of lard (E. Wilson). After this has lasted some time, the skin shrinks and becomes ivory-white in colour. The distribution is symmetrical, as in the infiltrated form, but, as a rule, not so extensive, only the face and upper limbs being attacked in many cases. The skin is stretched tightly over the bones, pinching the features like those of a corpse, shrivelling

the limbs, fixing the joints, and distorting the hands. The skin is so tightly drawn over the underlying parts that ulceration occurs on slight provocation.

In the infiltrated form the tendency is to gradual softening of the skin and recovery, with occasional relapses from taking cold or less obvious causes. The atrophic form is more chronic, the condition often persisting for years, and sometimes ending in death from exhaustion; the stiffening of the skin may, however, disappear, but the shrunken tissues never recover their normal state, and some deformity may be left. The affection runs a more acute course in children than in adults.

Sclerodermia is not unfrequently associated with acute rheumatism, and cardiac lesions are sometimes present. Meneau<sup>1</sup> believes that the disease may be secondary to various other processes—cardiac oedema, varicose thickening, scleroses due to traumatic lesions of nerves, ataxia, and elephantiasis. Sclerodermia and vitiligo may co-exist in the same person, and a case has been reported by Haushalter and Spillmann<sup>2</sup> which may be a connecting link between the two diseases. Tedeschi<sup>3</sup> reports a case in which sclerodermia was associated with neuritis, the two affections, in his opinion, being interdependent and due to a common cause. The disease is much more common in the female sex than in the male. No age is exempt. Of its causation nothing is known, but nervous depression and privation are believed to be predisposing factors. It has been suggested by Gustav Singer<sup>4</sup> and other authors that myxœdema, Graves's disease, and sclerodermia are closely allied affections, all springing from the same cause,

<sup>1</sup> *Journ. des Mal. Cut. et Syph.*, March, 1898.

<sup>2</sup> *Nouv. Icon. de la Salpêtrière*, No. 3, 1899 (abstr. in *Brit. Journ. Derm.*, 1899, p. 410).

<sup>3</sup> *Gaz. d. ospedali e d. cliniche*.

<sup>4</sup> *Berlin. klin. Woch.*, March 18, 1895.



namely, a lesion of the thyroid body. Enlargement of the pituitary has been found in association with sclerodermia.<sup>1</sup> The anatomical conditions are due to obstruction of the circulation—arterial, venous, and lymphatic—by narrowing of the vessels consequent on the pressure of layers of cells which surround them like a sheath; in some cases further narrowing has been caused by concentric hypertrophy of the inner and middle coats of the vessels. How this accumulation of cells is caused is not known; it does not, however, appear to be the result of inflammation. The most probable cause of sclerodermia is defective innervation, the source of which must be situated high up, not improbably in the vasomotor centre (Crocker).

From what has been said it will be gathered that the prognosis is much more favourable in the infiltrated than in the atrophic form.

The indications for the **treatment** of sclerodermia are to guard the patient against cold, to improve nutrition by *cod-liver oil*, etc., and to stimulate the circulation in the affected parts by massage and galvanism. *Arsenic* is sometimes useful. Singer suggests *thyroid feeding*.

**Morphœa** is, anatomically and clinically, closely allied to the condition just described. It occurs in the form either of patches or of bands, the former being more common in adults and the latter in children. The patches, which are generally level with the surrounding skin, though sometimes slightly depressed, are irregular in outline and white or creamy in colour; the edges are streaked with small dilated vessels, making a pink or violet border. They occur most frequently on the limbs, especially the lower, on the trunk, especially on the breasts, and on the face; they are not, as a rule, symmetrical, and in their distribution they sometimes

<sup>1</sup> Hektoen, *Centralbl. f. allg. Path.*, viii. 17.

follow the course of a nerve distribution in the sense that herpes zoster does (p. 166).

The affected skin is not adherent to the underlying tissues ; on pinching it up it feels like parchment or stiff leather (Crocker). The patches may remain stationary for a long time, or they may gradually extend, small atrophic spots appearing in their neighbourhood, and in time coalescing with them. The condition causes no symptoms except itching and suppression of sweat secretion in the patches. It may last for years, fresh patches forming while some of the older ones disappear.

Bands usually cause grooving of the skin, owing to their being adherent to the underlying structures sometimes they form ridges on the surface. They often have the appearance of a cicatrix.

Telangiectases, patches of pigmentation and atrophic striæ, are frequently intermingled with the lesions of both forms of morphœa.

The affection is more common in females than in males. It may occur at any age after infancy. The neurotic temperament and nervous depression from any cause are predisposing factors. The determining cause sometimes appears to be local irritation, as by garters, the pressure or friction of clothing, stays, blows, etc. The pathology is essentially the same as that of diffuse sclerodermia—namely, local obstruction to the blood supply, probably dependent on defective innervation. Cases of a mixed nature have been recorded, a primary diffuse sclerodermia or lupus erythematosus being followed by the development of typical morphœa patches.

Morphœa is distinguished from leucodermia by the absence of hardness of the integument in the latter. Morphœa, as a rule, tends to spontaneous recovery, the bands being more persistent than the patches. Local treatment generally does more harm than good. Brocq,

however, has been successful with electrolysis. The improvement of the general tone of the circulation by massage is likely to assist the curative efforts of nature.

**Morphœa guttata** ("white-spot disease").—Under this name has been described a rare but fairly distinct clinical variety of morphœa occurring in girls and women. The parts chiefly attacked are the neck, the shoulders, the upper parts of the back and chest, and the breasts. The characteristic features of the affection, as set out by Drs. Montgomery and Ormsby,<sup>1</sup> are, besides the location of the lesions, their dense whiteness, their sharpness of outline, making them look as though they were let into the healthy skin, their small size, and their tendency not to coalesce even when grouped closely together. Nor do they show the coloured border exhibited by morphœa. In one of the two cases observed by Montgomery and Ormsby some of the lesions, after a few years, were transformed into typical areas of morphœa, and in all the ten cases reviewed the last atrophic stage appeared to be identical with the same stage of morphœa and with macular atrophy of the skin, save that the scars were small and remained discrete.

**Lichen.**—The term "lichen" is often loosely used to designate a number of diseases which have nothing in common but the fact that at some time or another the eruption has been papular in character. Thus lichen simplex and lichen agrius are really varieties or phases of eczema. Lichen strophulosus is a form of miliaria occurring in infants. Lichen tropicus, or prickly heat, is also a form of miliaria; and lichen urticatus has already been described as a form of urticaria affecting children. Accepting Hebra's restriction of "lichen" to conditions characterised by papules of typical form, which persist as such throughout their whole course, I recognise only one form of lichen—*i.e.* lichen ruber planus.

<sup>1</sup> *Trans. Amer. Derm. Assoc.*, 1906, p. 88.



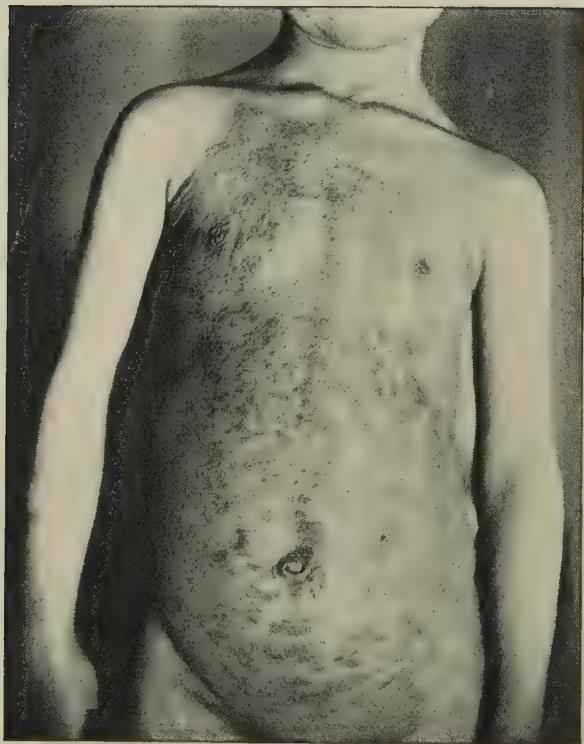


PLATE VI.—LICHEN RUBER PLANUS IN A CHILD.

The affection termed by Kaposi "lichen scrofulosorum" is described among tuberculous diseases.

**Lichen ruber planus.** — Lichen planus was first described by Erasmus Wilson, and is still accepted by Besnier and other leading dermatologists as the type of the group of affections designated by the name of "lichen." The condition described by Hebra under the name of lichen ruber is identical with Wilson's lichen planus, as from personal observation of the cases on which both these distinguished men based their descriptions I am able to testify. I therefore call the disease lichen ruber planus. Kaposi describes two forms of lichen ruber, namely, lichen ruber planus and lichen ruber acuminatus. In my opinion, however, these names represent two distinct diseases, the latter being the same as Devergie's disease (pityriasis rubra pilaris), under which heading it is described (*see* p. 195).

The view that lichen ruber acuminatus and pityriasis rubra pilaris are identical receives strong confirmation from the similarity of the process in the two conditions, as shown by the histological researches of Lukasiewicz<sup>1</sup> and Max Joseph.<sup>2</sup>

Lichen ruber planus is ordinarily characterised by an eruption of small, irregularly shaped papules, flat on the top and sometimes umbilicated. (Plate VI.) The papules are of a violet or lilac tint, and they have a little scale in the centre which at first sight, especially if looked at sideways, makes them appear as if they were vesicating. At first the papules are irregularly scattered about, but they soon group themselves in lines, curves, or rings (annular lichen planus), the favourite situations being the flexor surface of the wrists, the popliteal space, and the limbs. They do not, however, spare the trunk of the body, and they are seen on the mucous membrane

<sup>1</sup> *Arch. f. Derm. u. Syph.*, Bd. xxxiv., 1896, p. 163 *et sqq.*

<sup>2</sup> *Ibid.*, Bd. xxxviii., Jan., 1897.

of the lips and tongue. In the palms of the hands the papules feel like small corns. On the trunk they generally lie very close together, like the pieces of a mosaic

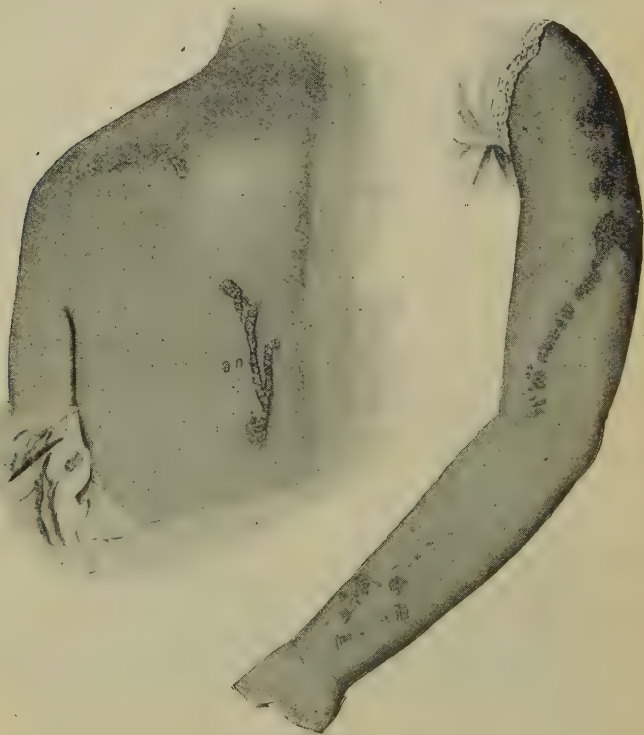


Fig. 3.—Linear Lichen Ruber Planus.

the older papules in the middle become flattened and of a sepia colour, whilst a new crop springs up around them, producing something of the effect of a dark stone set in pearls (Kaposi). Occasionally the lesions of lichen planus follow the distribution of a nerve, and appear in long streaks. (Fig. 3.) Galloway<sup>1</sup> has reported a case

<sup>1</sup> *Brit. Journ. Derm.*, vol. viii., Nov., 1896, p. 436.



in which the eruption corresponded to the distribution of the small-sciatic nerve, and Sir Stephen Mackenzie has observed it around the body like zoster. In a case described by Gunsett<sup>1</sup> the rows of lesions corresponded with the distribution of the subcutaneous veins of the thighs, and for the most part were disposed like the beads in a rosary. This necklace-like arrangement of the papules is the *lichen ruber moniliformis* of Kaposi, but it occurs too seldom to deserve recognition as a distinct variety of lichen planus. In course of time large areas of skin may be invaded, and the integument then has a uniform dark red colour; it is distinctly thickened, and feels rough to the touch. At this stage the disease has more or less the appearance of psoriasis, but without the general scaliness characteristic of that affection. In the adult there are seldom any vesicles and never pustules mingled with the papules, but in rare cases bullæ and vesicles appear. Whitfield<sup>2</sup> has collected the reports of seventeen cases, in addition to one of his own, in which bullæ were present. In at least nine of them the bullæ occurred before arsenic was administered, so that they could not be attributed to the drug. In eight cases they did, and in three they did not, correspond exactly with the papular lesions. Roná has reported a case, thought to be unique, in which the bullæ appeared before the papules. In children vesicles are sometimes seen. On the mucous membrane of the cheeks, tongue, palate, and lips the eruption shows itself in the form of Chinese-white patches. It has the appearance of a streak of milk on the mucous membrane, and it is often confounded with the mucous patches of syphilis. The disease is essentially chronic in its course. The papules disappear after a few weeks, leaving in their place stains varying in hue from light brown to

<sup>1</sup> *Arch. f. Derm. u. Syph.*, May, 1902, p. 179.

<sup>2</sup> *Brit. Journ. Derm.*, May, 1902, p. 161.

black. Later, these stains lose their pigmentation and become white and atrophic, like scars. As one crop of papules disappears others come out in different places. The disease sometimes remains limited to particular parts of the body for a year or two, but it may in course of time invade nearly the whole surface of the skin. In some cases—especially on the legs and in persons with varicose veins—lichen ruber planus assumes a hypertrophic form, the patches being raised so as to form plateaux of considerable extent (*lichen hypertrophicus*). (See Plate VII.) It may also assume an atrophic form—the *lichen atrophique* of Hallopeau. Two such cases, in which the patches were demarcated by a raised bluish-red margin surrounding atrophic skin, are reported by Zarubin.<sup>1</sup> Other cases are described by Reiss and Wechselmann. Drs. Montgomery and Ormsby<sup>2</sup> report a case of “lichen planus et atrophicus,” which they hold to be entitled to recognition as a distinct type of lichen planus.

The affection varies very greatly in severity in different persons. Sometimes the subjective symptoms are very severe; there is intense itching, with restlessness, insomnia, and the deepest mental distress or violent excitement. In the later stages, when the lesions extend over a considerable portion of the body, the skin becomes very tender, and great pain is experienced when the parts are pressed. Occasionally old-standing lesions take on a warty character (*lichen verrucosus*).<sup>3</sup> Emery and Humbert<sup>4</sup> describe a case in which the warty lesions were present on the scalp as well as on the internal surface of both knees.

<sup>1</sup> *Arch. f. Derm. u. Syph.*, Dec., 1901, p. 323.

<sup>2</sup> *Trans. Amer. Derm. Assoc.*, 1906, p. 99.

<sup>3</sup> See paper (with illustrations) by Fordyce: *Journ. Cut. and Gen.-Urin. Dis.*, vol. xv., Feb., 1897, p. 49.

<sup>4</sup> *Ann. de Derm. et de Syph.*, Jan., 1904, p. 41.

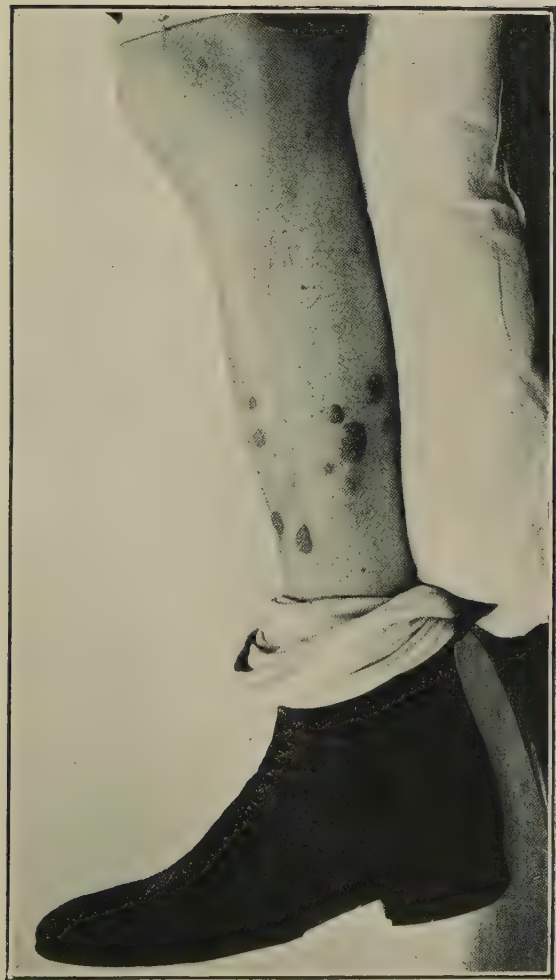


PLATE VII.—HYPERTROPHIC LICHEN RUBER PLANUS.



Special reference must be made to an acute variety of lichen ruber planus, which is characterised by rapidity of onset and intense severity of lesions, the extremities being swollen and tense, and the blue or purple appearance being very marked. I have seen several examples. In a very severe case under my care the patient was a man aged thirty-one, otherwise healthy. Within a few weeks the whole body was covered with the eruption, the hands and feet being most severely affected, swollen, blue, oedematous, and subsequently desquamating in large masses as in scarlet fever. On the body, though the eruption was most extensive, the characteristic appearance of the individual papules was not lost.

Lukasiewicz<sup>1</sup> has recorded a case in which lichen ruber planus and acuminatus occurred in the same patient, a man aged twenty-six. The lesions characteristic of the former affection predominated on the face, neck, trunk, scrotum, and penis; those of the latter on the extremities. The man was in hospital nine months, and Lukasiewicz had the opportunity of observing on the trunk during a period of exacerbation distinct transitional forms of planus and acuminatus.

As regards the **pathology** of lichen, Crocker, whose careful examinations have been confirmed by more recent investigators, has shown that the process is inflammatory, the starting point being generally a sweat duct in the upper part of the corium. The inflammation results in thickening of the rete, with enlargement of the papillæ, the papillary vessels being dilated, and down-growth of the inter-papillary processes taking place. The hair follicles are seldom the seat of the disease. It is possible that the process is angio-neurotic, but so far this has not been proved.

The disease occurs in persons otherwise perfectly

<sup>1</sup> *Arch. j. Derm. u. Syph.*, Bd. xxxiv., Hft. 2, March, 1896.

healthy. It is neither contagious nor hereditary. It affects men in considerably larger proportion than women. The majority of patients are between twenty and fifty years of age, and the disease is very rare at each extreme of life.<sup>1</sup>

**Diagnosis.**—Lichen ruber planus has to be distinguished from psoriasis punctata, papular eczema, and papular syphilitic lesions. From psoriasis it is differentiated by the fact that the papules remain unaltered instead of spreading out into scaly patches; from eczema by the fact that usually no vesicles are formed; and from syphilis by the dryness of the papules. In all doubtful cases the characteristic primary papules of lichen ruber planus must be looked for. Generalised lichen ruber planus is sometimes difficult to distinguish from generalised psoriasis. The points of distinction are that in the former there is less scaliness and more thickening, and characteristic papules can usually be found at the margin of the patches.

The **etiology** of lichen ruber planus is obscure. The process, as already said, is essentially inflammatory in character; but, on the other hand, it is, in my experience, not unfrequently the result of a violent nervous shock or emotional disturbance. One of the worst cases I have seen was that of a lady whose husband died suddenly in a railway carriage while travelling with her from the South. Besides the shock of this event, she was subjected to much worry and anxiety by the necessity of going through, without assistance, the vexatious formalities insisted on by officials in such circumstances. She bore up well, however, till after the funeral, when she was suddenly seized with a severe attack of lichen ruber planus, in which the subjective symptoms were

<sup>1</sup> As regards lichen in early life, the reader is referred to a paper by Colcott Fox, "Notes on Lichen Planus in Infants," *Brit. Journ. Derm.*, 1891, p. 201.

of such intensity as almost to upset her reason. In other cases the neurotic element is very strongly marked, and I think it not improbable that this may be a leading factor in the causation of the disease. I have therefore included lichen ruber planus in this group provisionally, but it must be understood that the evidence of its nervous origin is so far entirely clinical.

**Treatment.**—Lichen ruber planus must be treated on the general lines already laid down for the treatment of skin affections of nerve disorder. *Arsenic* is particularly valuable if given in large doses and continued for a long time. Kaposi, following Hebra, looks upon this drug as a specific. In the case of children he gives it in the form of *Fowler's solution*, beginning with two drops daily and increasing the dose by very slow degrees; in adults he gives it in the form of *hypodermic injections of Fowler's solution* or of *Asiatic pills*. The treatment is begun by the administration of *three pills a day, increasing every four or five days by one pill, until a daily total of eight to ten pills is reached*. As a rule no improvement is perceptible before a period of six to eight weeks has elapsed, in which time the patient will have taken from 200 to 500 pills. The patient continues taking eight or ten pills daily till the disease has almost entirely disappeared, when the quantity is gradually reduced to six pills daily. This amount the patient continues to take for three or four months after the final disappearance of the eruption. I agree with Besnier, however, who, while admitting that arsenic often gives satisfactory results in lichen, says that in some cases it fails, while in others recovery takes place without it. However free from danger the method may be in experienced hands, the use of arsenic in such heroic doses is hardly to be recommended as a routine practice. In a case under the care of Pringle<sup>1</sup> remarkable subsidence of

<sup>1</sup> *Brit. Journ. Derm.*, 1901, p. 12.



the inflammatory lesions occurred during the administration of *antipyrin* in 10-grain doses thrice daily, which appeared to arrest all itching. In generalised lichen planus I have found the internal use of *biniiodide of mercury* most useful. I usually give it according to the following formula:  $\mathcal{R}$  *Liq. hydrarg. perchlor.*  $\mathfrak{Z}$ j; *potass. iodid. gr.* xl; *decoct. sarsæ co.*  $\mathfrak{Z}$ viiij. M.: two table-spoonfuls three times a day. Locally, the remedies indicated in lichen are those recommended for itching. Unna cured a series of cases in three weeks, without any internal treatment whatever, by means of frictions twice a day with an ointment composed of one gramme of corrosive sublimate, 20 grammes of carbolic acid, and 500 grammes of simple ointment, the patient afterwards being wrapped up in linen cloths and put to bed. *Pyrogallic acid* (5 to 10 per cent.) rubbed on the affected parts is useful in old-standing patches. *Mercurial plasters* are beneficial when the lesions are confluent, but if the surface thus treated is extensive, the practitioner must be on the watch for symptoms of mercurialism. In old atrophic patches the cautery may be required. In a case under my care hypertrophic masses which microscopically presented all the appearance of commencing epithelioma were left in the labium and had to be removed surgically. A case of hypertrophic lichen ruber planus described by Macleod, which was intractable to the ordinary forms of treatment, cleared up under the influence of the X-rays,<sup>1</sup> and the treatment yielded the same results in cases under my own observation.

**Lichen annularis.**—Under this name Galloway<sup>2</sup> has described an affection the distinctive characters of which are summed up by him in the following definition: "A chronic inflammatory disease of the upper layers of the cutis, associated with increase in the

<sup>1</sup> *Brit. Journ. Derm.*, vol. xix., p. 53, Feb., 1907.

<sup>2</sup> *Brit. Journ. Derm.*, June, 1899.

overlying epithelium, commencing as a nodule, spreading peripherally and healing in the centre, without suppuration or any rapid form of degeneration." The disease especially affects the dorsal surface of the phalanges in the neighbourhood of the joints. In the nature and distribution of the inflammatory infiltration it closely resembles lichen ruber planus, while in its progress it simulates certain other conditions whose toxæmic origin is better defined. Although there are wide clinical differences between the two diseases, Galloway considers that the histological characters of the affection bring it within the strictest definition of the term "lichen," while the ringed arrangement of the lesions is distinctive. Lichen annularis has certain analogies with a condition described by Crocker under the name of *erythema elevatum diutinum*<sup>1</sup> and with lupus erythematosus. From a study of a number of cases recorded under various names by Hutchinson, Dubreuilh, and others, Galloway concludes that there are certain chronic inflammatory conditions of the skin which produce lesions resembling in many points those of lichen planus, and caused by poisonous substances circulating in the blood, the nature of which is yet undetermined. These lesions present differences in the amount of congestion, in the appearance of the lesions, and in their duration. They agree, however, in their chief clinical features and in the histological changes which they produce. They do not suppurate. It is possible that gout and rheumatism are factors in their causation.

In January, 1902, Radcliffe Crocker<sup>2</sup> described six cases of a nodular ringed eruption which he termed *granuloma annulare*. Graham Little<sup>3</sup> also had six cases

<sup>1</sup> Radcliffe Crocker and Campbell Williams: *Brit. Journ. Derm.*, 1894, pp. 1, 3, 335.

<sup>2</sup> *Brit. Journ. Derm.*, Jan., 1902, p. 1.

<sup>3</sup> *Brit. Journ. Derm.*, July, 1908, p. 213, *et seq.*

under his observation, and gives a review of all the cases hitherto published. He believes in the close relation and possible future identification of granuloma annulare with lichen annularis.

**Lichen pilaris or spinulosus.**—Radcliffe Crocker and Colcott Fox were the first (in 1883) to call attention to the affection to which this name has been given. Occurring chiefly in children, it is marked by the projection of filiform spines from pilo-sebaceous follicles, of which the mouths are elevated into small acuminate papules, pinkish or pale in colour, and disposed in patches on the limbs and trunk. There is almost invariably no itching or other subjective sensations, nor any appreciable interference with the general health. The reported cases, English and Continental, are carefully reviewed by Adamson,<sup>1</sup> who, finding neither clinically nor histologically any evidence of pronounced inflammatory action, deprecates the application of the term "lichen," and suggests that Unna's name, keratosis follicularis spinulosa, is a more appropriate designation. While allowing that at first the lesions are slightly inflammatory, he holds that the essential part of the process is a hyperkeratosis of the follicular wall, due, perhaps, to toxic rather than to parasitic action or mechanical irritation. In adults the typical spiny lesions are generally, if not always, associated with lichen planus, and attended with pruritus. In a case shown by Adamson in 1906 the lesions began as simple spines without inflammatory papules, confirming his view that the affection is primarily a follicular hyperkeratosis.

**Porokeratosis (Mibelli).**—By this name Mibelli<sup>2</sup> has designated an affection presenting a certain re-

<sup>1</sup> *Brit. Journ. Derm.*, Feb. and March, 1905.

<sup>2</sup> *Monats. f. prakt. Derm.*, xvii., 1893, and *Ann. de Derm. et de Syph.*, June, 1905, p. 503.

semblance to lichen annularis. It is characterised by patches of irregular shape and size, surrounded by a horny linear edge. Galloway,<sup>1</sup> who showed a case at the Dermatological Society of London, pointed out that the lesions closely resembled those seen in the examples reported by Mibelli, Ducrez and Respighi, Gilchrist and others, being generally circular in outline, with irregularly advancing and receding margins. "Its periphery is marked by a raised border of loose horny epithelium, the summit of which has given way and allows a crack to appear in the greater part of its course. Within this horny outline numerous small conical elevations of the horny layer are obvious, while the greater part of the enclosed area of skin is smooth, and shows the normal furrows of the skin with very slight alteration." There seemed to be no appreciable thickening of the cutis. The disease, in Galloway's opinion, is of a totally different nature from lichen annularis, in which there is marked infiltration of the cutis, with much less disturbance of the horny layer than in porokeratosis. Mibelli regards as an eminently characteristic feature of porokeratosis the depressed furrow of the lesion. So far, however, very little has been found on histological examination to differentiate the one disease from the other. Galloway thinks it probable that some of the cases described by foreign observers under the name of porokeratosis have really been examples of lichen annularis. Mantoux<sup>2</sup> describes a papillomatous form of porokeratosis, the localisation of the tumours round the sweat orifices being his reason for terming the affection a porokeratosis. A similar case has been reported by Besnier, and another by Hallopeau.

**Parakeratosis variegata.**—This seems to be the most appropriate place for a brief description of a condi-

<sup>1</sup> *Brit. Journ. Derm.*, 1901, p. 262.

<sup>2</sup> *Ann. de Derm. et de Syph.*, Jan., 1903, p. 15.

tion which clinically may be classed among lichenoid eruptions, though pathologically it is distinct. The term "parakeratoses" was suggested by Unna<sup>1</sup> to denote superficial inflammatory processes affecting the epidermis and characterised clinically by scaliness. Under this general head he grouped scaly forms of seborrhœa, pityriasis, psoriasis, and other conditions in which scales are a marked objective feature. The addition of the qualification "variegata" was meant by Unna to designate a form of dermatitis, chronic in course, with spontaneous remissions, attacking the hand and extending to the extremities, characterised by flat papules, often surmounted by scales, the eruption as a whole producing a "variegated" appearance owing to the enclosure of areas of healthy skin in a meshwork of disease. There is no disturbance of the general health, nor are there subjective symptoms except a trifling amount of itching. In the cases on which Unna's original description was founded the histological examination showed that the papillary and sub-papillary layers were alone affected and presented dilated vessels, œdema, cellular infiltration, and a few leucocytes. Inter-epithelial and intra-epithelial œdema and thickening of the prickle layers were present, but there was no increase in mitoses. The stratum granulosum was present and the horny layer slightly thickened.

At the meeting of the British Medical Association held in Edinburgh in 1898 Jamieson<sup>2</sup> presented three cases for diagnosis, which were regarded by several of those present as examples of parakeratosis variegata. In one case the essential lesions were papules "which, clinically and microscopically, were identical with those of lichen planus"; in another "the lesions were indeterminate lichenoid"; while the third case was

<sup>1</sup> *Monats. f. prakt. Derm.*, Bd. x., 1890.

<sup>2</sup> *Brit. Journ. Derm.*, Sept., 1898.

considered by Jamieson to form a connecting link between the other two. Jamieson classified the cases as anomalous forms of lichen ruber planus; Radcliffe Crocker, and the author, suggested the possibility of their being instances of a premycotic condition; while Unna identified them as excellent examples of parakeratosis variegata. Boeck stated that he had seen several cases of similar nature, and had described them under the name "dermatitis variegata." It may be mentioned that Crocker has suggested the name "lichen variegatus" for the disease. In one of Jamieson's cases tumours like those of mycosis fungoides appeared subsequently on the face and body. Colcott Fox and J. M. H. Macleod have published a most instructive report of a case under their observation, and have collected and analysed all the records of similar cases published up to that time.<sup>1</sup> To their article the reader is referred. The conclusions at which they arrived are summarised by themselves as follows: "Parakeratosis variegata attacks chiefly the male sex; the patients are usually adults, and are generally in robust health when attacked. The clinical appearances and histological changes suggest vaso-motor disturbance as the etiological factor; this is associated with oedema and infiltration of cells in the corium and secondary changes in the epidermis. The initial lesion is a macule or maculo-papule of small size, flat on the surface and covered with a fine adherent scale which may be scratched off without causing bleeding. By the coalescence of the lesions a peculiar retiform arrangement results, in which areas of normal skin are enclosed, and which, combined with differences in the colour of the lesions in the more dependent parts of the body, produces a marbled or variegated appearance, which is one of the most pronounced characteristics of the dermatitis. It affects

<sup>1</sup> *Brit. Journ. Derm.*, Sept., 1901.



the skin almost universally, except as a rule that of the face, scalp, palms, and soles. It is subject to remissions and exacerbations, but is peculiarly chronic in its course. Marked subjective symptoms are singularly absent. It is strangely resistant to local treatment. It consists histologically of a superficial inflammation affecting the sub-epidermal layer, with dilatation of vessels, œdema, and infiltration of cells; and an œdematous condition of the epidermis, with more or less defect in the process of cornification. It may be regarded as belonging to a group of superficial inflammations of the corium, with secondary changes in the epidermis, which we have provisionally entitled 'resistant maculo-papular scaly erythrodermias,' which might include, besides this variety, erythrodermie pityriasique en plaques disseminées (Brocq), pityriasis lichenoides chronica (Juliusberg), dermatitis psoriasiformis nodularis (Jadassohn), and the lichenoid psoriasiform exanthem (Neisser).'' In a case observed by Professor Anthony<sup>1</sup> the retiform arrangement of the papules was absent, while there was pronounced pigmentation (light brown, chestnut brown, and bluish plaques), with some atrophy. He maintains, however, that the case was one of parakeratosis variegata, and points out that since the original case (Unna's) was published, in 1890, a number of cases have been reported in which there was no mesh-like disposition of the lesions.

Pernet suggests the name of **xantho-erythrodermia perstans** for an affection of which ten cases are described by Radcliffe Crocker,<sup>2</sup> who regards it as having many analogies with that group of Brocq's which includes his erythrodermia pityriasique en plaques disseminées, but as being separated from it by differences sufficiently

<sup>1</sup> *Trans. Amer. Derm. Assoc.*, 1906, p. 79.

<sup>2</sup> *Brit. Journ. Derm.*, April, 1905, p. 119.







PLATE VIII. PITYRIASIS RUBRA PILARIS.

marked to entitle it to be regarded, provisionally, as a dermatosis *sui generis*.

**Pityriasis rubra pilaris** (Plates VIII., IX., X., XI.) is an anomaly of cornification primarily affecting the hair follicles, at the orifices of which characteristic papules form, and secondarily leading to inflammatory changes of the dermic structures. There has been a good deal of discussion as to the relation of the affection to lichen ruber acuminatus. Kaposi thinks the two conditions identical, and I agree with him. What may fairly be called a test case was shown at Budapest to some members of the Congress of Dermatology held at Vienna in 1892. The patient was exhibited as an illustrative example of lichen ruber acuminatus, and the affection was unhesitatingly pronounced to be pityriasis rubra pilaris by the French dermatologists present. Neumann, however, maintains that lichen ruber acuminatus and pityriasis rubra pilaris are two distinct affections.<sup>1</sup>

Neisser<sup>2</sup> holds that there is a disease, differing from both lichen planus and pityriasis rubra pilaris, for which the name of lichen ruber acuminatus may conveniently be retained. Two cases were shown to illustrate this view, one being pityriasis rubra pilaris, the other lichen ruber acuminatus. The main points in the differential diagnosis are, according to Neisser, the following:—Lichen ruber acuminatus affects the general health very seriously, is benefited by arsenic to a very marked extent, and shows usually more distinctly papule formation and less hyperkeratosis. Under the microscope the papules of this disease are seen to be situated round a hair follicle, and to consist almost wholly of an infiltration of small cells in the corium. In pityriasis rubra pilaris, on the other hand, the disease causes scarcely any alteration of the general health, is essen-

<sup>1</sup> *Arch. f. Derm. u. Syph.*, 1892; Hft. 1.

<sup>2</sup> *Trans. 4th German Congress of Dermatology.*

tially chronic in nature, is quite uninfluenced by the administration of arsenic, and shows less marked papule formation but great hyperkeratosis. Under the microscope there was seen to be very little infiltration of the corium and a marked increase of the epidermis. Neisser admits that Kaposi described Devergie's disease under the name of lichen ruber acuminatus, but thinks that this disease was also included in the description. On the other hand, he considers that the French school have fallen into the same error, and described two diseases under the one name of pityriasis rubra pilaris. Lastly, the author admits that the initial lesion of lichen ruber acuminatus may also show hyperkeratosis, but even then the state of health and the action of arsenic make a great difference. This appears to coincide with Unna's *lichen neuroticus*.<sup>1</sup>

Pityriasis rubra pilaris usually comes on, so to speak, in disguise. Sometimes it appears in the form of scaly patches resembling psoriasis on the palms and soles, sometimes as a dry eruption, covered with eczematous-looking crusts, on the scalp and face. Soon, however, the characteristic papules become visible at the orifices of the hair follicles. These papules are small, red, hard, dry, harsh to the touch, and more or less conical in shape, each having a single atrophied hair in the centre surrounded by a kind of horny sheath which penetrates into the follicle. The projection of these tiny, cone-shaped papules is sufficient to roughen the surface of the integument, so that it feels like the skin of a newly-plucked fowl (Besnier). The papules are distributed on the limbs, especially where the hair is most abundant—that is to say, on the backs of the fingers (particularly the first and second phalanx), on the outer aspect of the forearms, on the outside of the thighs, and on the buttocks. They are also—though

<sup>1</sup> "Histopathology," p. 303.



PLATE IX.—PITYRIASIS RUBRA PILARIS (DR. GALLOWAY'S CASE).





PLATE X.—PITYRIASIS RUBRA PILARIS (DR. GALLOWAY'S CASE).





less frequently—seen about the elbows and knees. On the trunk they chiefly affect the waist and the lower part of the belly. They are at first discrete, but as they increase in number they tend to become confluent, and thus form patches. In these patches the distinguishing characters of the individual papules are lost in a pale yellowish-red surface, covered with papery scales, or with small adherent ones resembling mica, which, when situated in the positions most affected by psoriasis, may closely simulate the lesions of that disease. At the edge of the patches the characteristic conical papules are always to be seen.

The three marked objective features of pityriasis rubra pilaris are: (1) the “goose-skin” appearance and grater-like feeling caused by the conical papules at the orifices of the hair follicles; (2) the desquamation; (3) the redness of the surface. The natural folds of the affected parts of the skin are always exaggerated. The eruption often spreads over a large part of the body, and in some cases becomes universal. The lesions present certain differences of appearance, according to their situation. On the *face* they are often of a seborrhœic type, a red base being covered with adherent crusts; sometimes they have the characters of pityriasis rubra. They are always dry, and there is usually considerable tension of the skin, which may give rise to ectropion of the lower lid. On the *scalp* they are generally of seborrhœic type; the hair is often matted together by firm crusts. The *nails* become soft, greyish in colour, and marked with longitudinal yellow stripes. On the *hands*, however extensive the eruption may be, small blackish cones can always be seen around the hair follicles.

Beyond a trifling amount of itching, which, moreover, is by no means a constant feature, there are no subjective symptoms in pityriasis rubra pilaris. The

general health is seldom affected. The onset of the disease may be preceded by great irritation in the parts about to be attacked. Its course is slow, and subject to sudden remissions and exacerbations without obvious cause. Even when the affection appears to be completely cured, relapse may occur at any time.

The **diagnosis** is almost always easy. The characteristic conical papule, with its single hair, plugging the mouth of a follicle, is conclusive as to the nature of the disease. The best place to look for the lesions is on the backs of the fingers: they can be picked off, little pits being left which give the skin a cribriform appearance. The absence of any attendant disorder of the general health distinguishes the affection from other forms of exfoliative dermatitis. From lichen ruber planus it is differentiated (a) by the absence of itching; (b) by the absence of impairment of nutrition; and (c) by its resistance to the therapeutic action of arsenic.

As regards the **pathology**, Jacquet has shown<sup>1</sup> that the conical papule, which is the essential lesion of the disease, is caused by exaggerated cornification of the epithelial wall of the infundibulum of the hair follicle. The plugging of the follicle is followed by inflammatory lesions in the dermic structures.

The **treatment** of pityriasis rubra pilaris is unsatisfactory. Arsenic appears to be contra-indicated; but Brocq, while admitting that the drug cannot be relied on, recommends *arseniate of soda* in gradually-increasing doses.<sup>2</sup> Heidingsfeld discountenances the injection of arseniate of soda, and reports three cases which yielded to the administration of intestinal aseptics, such as *Beta-naphthol* and *guaiacol carbonate*, or *carbolic acid*, with the hypodermic injection of *arsenic* in the form of *atoxyl* or *cacodylic acid*, the external applica-

<sup>1</sup> Quoted by Brocq; *op. cit.*, p. 644.

<sup>2</sup> *Op. cit.*, p. 644.



PLATE XI.—PITYRIASIS RUBRA PILARIS (DR. GALLOWAY'S CASE).



tion of *tar*, and attention to diet.<sup>1</sup> Sudorifics are clearly indicated by the dryness of the skin; for this purpose *pilocarpine* or *jaborandi* is likely to prove useful, or, as suggested by Brocq, violent exercise may be indulged in, of course with due regard to the special circumstances of each case. Locally, *oil of cade* may be applied. Brocq speaks well of *pyrogallie acid*. If inflammation runs high, soothing applications are required. Sebaceous concretions on the face or scalp should be removed in the usual way.

Brocq has given the name of **congenital ichthyosiform erythrodermia** to an affection closely resembling pityriasis rubra pilaris, of which he has seen two or three cases, in addition to others recorded by various writers under different names.<sup>2</sup> The objective symptoms are generalised redness, less accentuated on the face, thorax, and abdomen, and exaggerated on the neck, the folds of the joints, and the limbs. The papillæ of the skin are much enlarged, and this is accompanied by a marked general hyperkeratosis. The scalp is always markedly seborrhœic. In all cases the affection was either congenital or began in earliest infancy. There was no particular disturbance of the general health, and the affection lasted for many years. In certain cases it seemed to become mitigated as age advanced, but in no case has a cure been observed. C. Rasch<sup>3</sup> suggests that the affection should be styled ichthyosis rubra. The features which are held to differentiate it from pityriasis rubra pilaris are that it is congenital, runs a different course, and lasts longer, and is not accompanied by impairment of the health.

**Anomalies of pigmentation** may occur as the

<sup>1</sup> *Journ. Cut. Dis.*, Aug., 1906.

<sup>2</sup> *Ann. de Derm. et de Syph.*, Jan., 1902 (abstr. in *Brit. Journ. Derm.*, Oct., 1902).

<sup>3</sup> *Derm. Zeitschr.*, vol. viii., p. 669.

result of inhibition of the regulating influence of the nervous system, as by mental shock or long-continued depressing conditions, or by reflex disturbance. Thus, as is well known, the hair may grow rapidly grey under the stress of fear or sorrow; and Paget mentions the case of a lady subject to nervous headache who always found in the morning, after an attack, that some patches of her hair were white, as if powdered with starch. The change was effected in a night, and in a few days the hairs gradually regained their dark-brownish colour.<sup>1</sup> The patches of yellow-brownish staining often seen on the forehead, cheeks, and nipples of pregnant women, and known as **chloasma uterinum**, illustrate the disorder in the distribution of pigment that may be caused by reflex irritation. Its reflex nature is shown by the fact that it is not always associated with pregnancy, but may occur in connection with any form of uterine irritation. The general bronzing of the skin observed in Addison's disease is due to irritation of the abdominal sympathetic, particularly the solar plexus. Pigmentation is also a symptom of Graves's disease.<sup>2</sup> The rare condition designated by Virchow *ochronosis*—a blackening of the cartilages, sclerotics and skin—has been traced in some cases to alkaptonuria, in others to the prolonged absorption of carbolic acid.<sup>3</sup> The pigmentary changes in the macular form of leprosy and in leucoderma are tropho-neurotic in their nature. The former will be described under the heading of Leprosy (Chapter XXI.), but a brief account must be given of the latter, which, so far as we know at present, is an independent disease.

**Leucoderma**, or vitiligo (Plate XII.) is somewhat rare

<sup>1</sup> "Surgical Pathology," 3rd edition, London, 1870, p. 31.

<sup>2</sup> *Brit. Journ. Derm.*, Oct., 1900 (Dore).

<sup>3</sup> See *Lancet*, Jan. 21, 1904 (Osler), and July 11, 1908 (A. E. Garrod).





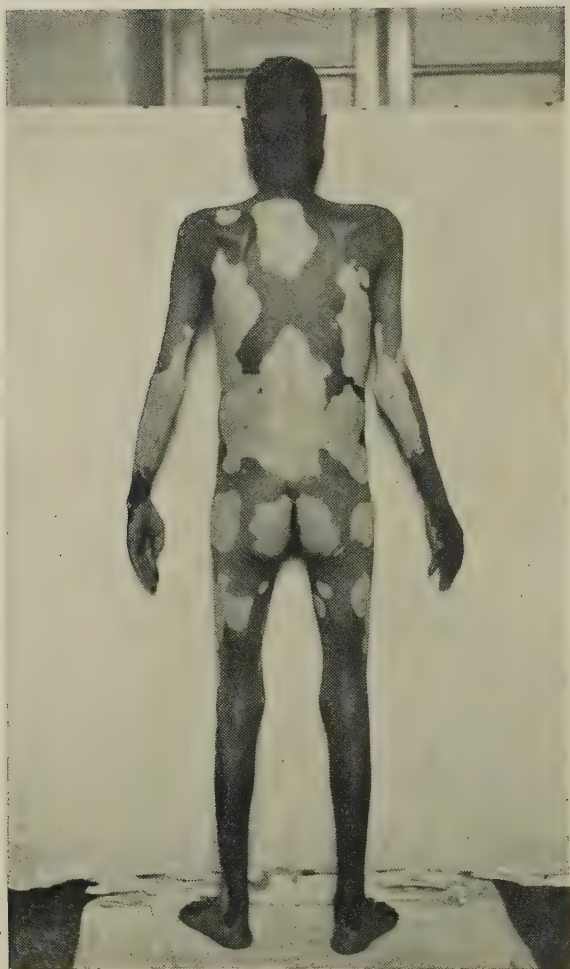


PLATE XII.—LEUCODERMIA.

*(By permission, from the Photographic Album of the School of  
Medicine, Cairo.)*

in Great Britain, and in Europe generally; but it is common in the tropics, and especially in the dark races. Its characteristic feature is the formation in different parts of the body of white patches, surrounded by a pigmented border. The appearance is as if the pigment had receded from the affected area and heaped itself up at its circumference. The patches are at first small, and more or less rounded in shape. As they spread, however, their outline becomes irregular, but the border always remains convex. The pigmented zone surrounding them merges insensibly into the healthy skin around it. The white patches may be few or many in number, and they may be scattered about irregularly, giving the surface of the integument a map-like appearance, or distributed with some approach to symmetry, especially on the limbs. The neck is a common situation; but the face, the scalp, and the trunk, as well as the limbs, may be the seat of the affection. The disease is very slow in its course, and in some cases after a time it becomes stationary. In other cases, again, it spreads over the whole body, taking, however, many years to do so. The affected skin is smooth and supple, and shows no sign of scaliness; the physiological functions of the skin are intact, and sensation is unaltered. Sometimes slight itching may precede the formation of a patch. The hairs in the affected areas participate in the loss of pigment, and turn white. Both sexes are equally liable to the disease. Between ten and thirty is the time of life when it generally commences.

There can be little doubt that leucodermia is a disease of neurotic origin, and Leloir in some cases found changes in the nerves supplying the whitened patches of skin. It also not unfrequently follows violent mental emotion or prolonged depression from illness or anxiety. Extreme heat or cold appears to have some influence as

an exciting cause. By some authors leucodermia is supposed to be usually, if not invariably, associated with syphilis, but this view, which is shared by Pierre Marie, is combated by Thibierge,<sup>1</sup> who cites three cases in which leucodermia developed from one to three years before the contraction of syphilis. It is occasionally associated with alopecia areata.

Leucodermia can be distinguished from macular leprosy by the absence of anæsthesia in the white patches, and from sclerodermia by the absence of the parchment-like stiffness and thickening of the skin characteristic of that condition.

The prognosis of leucodermia is by no means favourable, so far as restoration of the pigment is concerned. The process, as already said, sometimes comes spontaneously to a standstill.

There is little to be done in the way of **treatment**. It is impossible to restore the lost natural colour, though the surrounding increase of pigment may be modified by the application of weak *corrosive sublimate* or *peroxide of hydrogen*.

The anomaly of pigmentation known as **hæmochromatosis** may be mentioned here, although it appears to be directly due to diseases of the alimentary tract and liver. In a case described by Galloway<sup>2</sup> the patient was pigmented from head to foot, the colour in the flexures of the body, where it was most distinct, being of a deep grey-blue slate tint. A collection of free, clear fluid, containing a few flakes of lymph, was evacuated from the abdomen by operation, and the patient, who was emaciated to an extreme degree, made an uninterrupted recovery, though the skin did not quite regain its normal colour.

**Raynaud's disease**, or symmetrical gangrene of

<sup>1</sup> *Ann. de Derm. et de Syph.*, Feb., 1905, p. 128.

<sup>2</sup> *Brit. Med. Journ.*, March 21, 1908.

the extremities (including in that term the tip of the nose and the ears), is a disorder of the peripheral circulation, and has three well-marked stages : First, spasm of arterioles, with pallor and loss of sensibility in the affected parts (local syncope, "dead fingers") ; secondly, stagnation of the venous circulation, with consequent cyanosis of the parts ; thirdly, superficial gangrene—the skin becoming black, the epidermis becoming covered with eschars, and being raised here and there into bullæ, which dry up or burst and leave persistent ulcers. A line of demarcation is formed, and in several cases separation of the affected part takes place. Carl Beck<sup>1</sup> has reported two cases in which not only the soft tissues but also the bones were affected. The gangrenous process is at first accompanied by sharp pain, formication, and itching. In slighter cases, after the sloughing of the superficial tissues is complete, healing takes place, the fingers, however, remaining thinned, and covered with small white depressed cicatrices of considerable toughness. The process may be arrested in any of the three stages above described.

Raynaud's disease is almost invariably symmetrical, but the process may be mild on one side and severe on the other. In a case under my own care it was asymmetrical. The order of frequency with which different parts are attacked is as follows :—Fingers, toes, heels, nose, and ears. Any part of the body, however—limbs, trunk, or face—may be assailed.

Females are more liable than males. No age is exempt, but children are more often attacked than adults. Persons in whom the circulation is weak, and especially those who are subject to "deadness" of the fingers or to chilblains, are especially prone to Raynaud's disease. The most favourable predisposing condition for its development is the combination of a

<sup>1</sup> *Amer. Journ. Med. Sci.*, Nov., 1901.

sluggish circulation with an unstable nervous system. Both in Raynaud's disease and in chilblains there is an undue susceptibility to the affection, apart from exposure to cold; in chilblains, however, reaction follows early, while in Raynaud's disease necrosis occurs before reaction can take place. Malaria, gout, and diabetes are believed to have a certain predisposing influence. The most frequent exciting causes are cold and an attack of acute disease (scarlet fever, measles, diphtheria).

The prognosis depends on the severity and extent of the process and the constitutional state of the patient. Death is rare; but, on the other hand, the disease is always likely to recur, and permanent changes in the parts or mutilation may occur.

**Treatment.**—The most efficient treatment is galvanism. The constant current should be applied by immersing the affected extremity in a large basin of salt water, one pole being placed in the water while the other is applied to the limb. If this treatment be employed sufficiently early, the progress of the disease will often be cut short. Massage is also very useful, and the internal administration of *ichthyol*, *arsenic*, or *quinine* may sometimes prove of service. When gangrene has taken place, the treatment must be conducted on ordinary surgical principles.

*Sclerodactylia* or *acrosclerodermia*, which is generally described as a form of sclerodermia, may occur in association with Raynaud's disease; it may, however, occur independently.<sup>1</sup>

The process appears to consist in spasm of the arterioles, due to central or peripheral nervous disorder. The other phenomena are those of ordinary gangrene.

<sup>1</sup> For an interesting discussion of this subject see Parkes Weber, "Trophic Diseases of the Feet; an Anomalous and Asymmetrical Case of Sclerodactylia with Raynaud's Phenomena," *Brit. Journ. Derm.*, Feb., 1901.

**Dermatitis repens.**—Under this title Crocker has described a form of spreading dermatitis occasionally following injuries. It commences almost exclusively in the upper extremities, and is probably neuritic in character. I have seen a case in which the disease began on the sole of the foot, due to injury from a tack. The condition might sometimes be mistaken for eczema, but the oozing surface entirely denuded, and the sharply defined undermined spreading edge, are quite different from anything seen in that affection. The disease, though primarily the result of peripheral neuritis, is probably kept up and aggravated by secondary parasitic irritation. This view is confirmed by the beneficial effect of the local application of anti-parasitic remedies. It is sometimes persistent and difficult to cure.

**Erythema serpens.**—Morrant Baker<sup>1</sup> gave this name to an affection which has since been described independently by Rosenbach under the designation of "erysipeloid."<sup>2</sup> It appears to be due to inoculation with poisonous matter, and is seen most frequently in cooks, butchers, and persons who handle game, skins, etc. It shows itself as an erythematous eruption which starts from the seat of a small injury, doubtless the point of inoculation, generally on the fingers, especially about the knuckles. It spreads centrifugally, clearing up in the centre as the edge advances; the circle soon breaks up, and when first seen the lesions generally present themselves as blotches of pink erythematous rash. There is no suppuration, and no involvement of the lymphatics of the arm. The subjective symptoms consist of local tingling, burning or shooting pains; there may also be some nervous excitement. The duration is from a fortnight to six weeks, the average being three weeks. Rosenbach believes that the affection is

<sup>1</sup> *St. Bartholomew's Hosp. Reports*, vol. ix., 1873.

<sup>2</sup> *Verhandlungen d. deut. Gesellschaft f. Chir.*, April, 1887.



due to a micro-organism, supposed to be a cladothrix, which exists in decomposing animal matter. He found a coccus associated with the disease, the inoculation of pure cultures of which produced a typical attack of the disease within forty-eight hours.

Dermatitis serpens appears to be quite distinct from dermatitis repens.

**Diabetic gangrene.**—In diabetes localised inflammation, ending in gangrene, is not unfrequently observed in the foot, especially in one or other of the toes. It is not always the distal end that is attacked. The lesion sometimes affects a circumscribed area on the sole, the ball of the toes, or the dorsum. The part becomes inflamed, bullæ are formed, and more or less extensive sloughing takes place. The process, as a rule, affects only one side. Kaposi<sup>1</sup> has described a case of what he calls “bullo-serpiginous diabetic gangrene,” in which the left leg was the seat of an eruption of disseminated bullæ on an inflamed base, with subsequent formation of eschars. From the affected part, as from a centre, the process extended serpiginously: the lesions took several months to cicatrise, and death occurred only after the process had invaded the tibio-tarsal joint. Gangrene of the penis, toes, etc., has also been observed in association with diabetes.

**“Hysterical” gangrene.**—So-called “spontaneous” gangrene of the skin has occasionally been seen in young women, mostly in those presenting unmistakable signs of hysteria and anæmia. The patient suddenly feels a sensation of burning on some part of the skin, usually the chest or the arms. On examination a raised and somewhat red spot, varying in size from a shilling to a crown piece, is seen in the place where the sensation was localised. In a few hours the skin becomes bluish-black or greenish-brown in colour, and a leathery

<sup>1</sup> *Op. cit.*, t. i., p. 489.

eschar is formed resembling that produced by the application of sulphuric acid. This separates in due course, and its place is taken by a hypertrophic cicatrix. The same process is repeated in other parts at intervals of a few days or weeks, and this may go on for months or even years, and then finally stop. This description is taken almost verbatim from Kaposi,<sup>1</sup> who expresses no suspicion of the genuineness of the phenomena. To me, however, the facts, as given by him, are strongly suggestive of imposture. As the result of a study of five cases S. Roná concludes that the lesions of "hysterical gangrene" are artificially produced by some form of caustic.<sup>2</sup> Max Joseph has recorded a case of multiple neurotic gangrene of the skin,<sup>3</sup> and Brandweiner another, in which the patient, a woman of thirty-one, had been a hysteric from the age of thirteen, and had several times been treated in asylums. Injection of serum from the patient's own blood caused gangrene, but no such result followed control experiments performed upon her.<sup>4</sup>

**Glossy skin.**—As the result of injury to the trunk of a nerve supplying a particular part of the integument, a peculiar change is often observed which is known as "glossy skin." The first account of this condition was given by Paget many years ago. After injury to the brachial plexus, he noticed that the fingers assumed "a smooth, glossy, tapering appearance, almost void of wrinkles, and hairless, pink, or ruddy, or blotched as if with permanent chilblains, and associated with this condition of the skin was distressing local pain."<sup>5</sup>

<sup>1</sup> *Op. cit.*, p. 489.

<sup>2</sup> *Arch. f. Derm. u. Syph.*, June, 1905, p. 257.

<sup>3</sup> *Arch. f. Derm. u. Syph.*, Bd. xxxi., June, 1895.

<sup>4</sup> *Monats. f. prakt. Derm.*, Sept. 1, 1904, p. 241.

<sup>5</sup> "Surgical Pathology," 3rd edition, London, 1870, p. 32.

Paget's cases were published in the *Medical Times and Gazette* of March 26th, 1864.

A fuller account of the condition was given by Weir-Mitchell, Morehouse, and Keen<sup>1</sup> from their vast experience of nerve injuries during the American Civil War. They compare the appearance of the affected skin to that of a highly polished scar. The skin easily becomes inflamed, excoriated, and fissured. Characteristic changes in the nails are also observed. They are curved both in the longitudinal and in the transverse direction, and the cutis beneath their free ends is sometimes thickened. The condition, in short, is one of atrophy with degeneration of the skin, rendering it more vulnerable by injurious influences of all kinds owing to impaired nutrition. This is dependent on neuritis of the trunks from which it derives its nervous supply, and the effect is the same whether the nerve lesion is the result of injury or disease. This "glossy" skin is observed in non-tuberculated leprosy, gout, rheumatism, etc., as well as after traumatism.

The condition tends to disappear as the nervous influence is restored either by subsidence of the neuritis or by the establishment of a collateral supply.

**Localised atrophy of the skin** may be the result of tropho-neurosis; it may take the form of linear streaks of striæ, or less commonly of maculæ. A good example of the former has been recorded by Ohmann-Dumesnil.<sup>2</sup> A little girl, who had been severely burnt on the wrist, some years afterwards presented atrophic rectilinear areas about three-quarters of an inch in width, and varying from three-quarters to two inches in length, on the front of the arm and forearm, apparently following or lying directly over the brachial and radial nerves. The areas were five in number; they were distinctly depressed, and the colour was paler than that of the normal skin, but warmth made them

<sup>1</sup> "Gunshot and other Injuries of Nerves," Philadelphia, 1864.

<sup>2</sup> *Brit. Journ. Derm.*, 1890, p. 246.

redder than the healthy integument. On pinching up the affected skin it was felt to be thinner than in other parts. Striæ may also be the result of injury during growth, pregnancy, and other conditions in which the skin is subjected to stretching. Many cases of striæ patellares following typhoid fever have been recorded, and Köbner<sup>1</sup> concludes, from the histological and clinical evidence taken together, that in such cases the striæ are due to tension of the skin produced by rapid growth of the long bones and in other ways. Bleibtreu<sup>2</sup> reports striæ patellares as a sequel of scarlet fever, and they have also been described in phthisis, and colitis. Bunch<sup>3</sup> gives an account of the recorded cases, and reports two observed by himself. One of these followed typhoid fever and the other occurred in a case of pleurisy and endocarditis of long standing. The histological appearances pointed to the conclusion that rupture of the elastic fibres of the corium had taken place, due probably to stretching or tension rather than to inflammation.

A peculiar form of atrophy of the skin has been described by Herxheimer and Hartmann under the name **acrodermatitis chronica atrophicans**. These writers have published<sup>4</sup> a study of twelve cases, and at the time their paper appeared the total number of cases recorded was twenty-seven. The affection begins with inflammation and infiltration, and, as in lupus erythematosus, these symptoms are succeeded by atrophy. Its etiology is not understood, and it runs an obstinately chronic course. It is differentiated from so-called *idiopathic atrophy* in that the atrophy is preceded by an inflammatory stage.

<sup>1</sup> *Munch. med. Woch.*, May, 1904, p. 928.

<sup>2</sup> *Ibid.*, Sept. 12, 1905, p. 1768.

<sup>3</sup> "Striæ Patellares," *Brit. Journ. Derm.*, Jan., 1905, p. 1.

<sup>4</sup> *Arch. f. Derm. u. Syph.*, July and Aug., 1902.

**Charcot's bed-sore.**—A form of localised gangrene of the skin has been described by Charcot under the name of "acute bed-sore." Its characteristic feature is the suddenness of its development. It is generally associated with transverse myelitis, sometimes with abscess of the brain, and is in that case situated on the side of the body opposite to that of the cerebral lesion.

**Trophic ulcers.**—Trophic ulcers are the result of direct injury to nerves, or in some cases of reflex irritation. They generally spread serpiginously, and are preceded and accompanied by pain of neuralgic character referred to the area of distribution of a particular nerve. The ulcers often form under vesicles or bullæ, and leave indelible depressed or cheloid scars (Brocq). In some cases the process takes on a gangrenous character.

**Perforating ulcer of the foot** is a special form of trophic ulceration seen on the foot, but occasionally also on the hand. It is the result of pressure or injury in an extremity in which, owing to peripheral or central lesion, the proper nervous supply is interfered with. It occurs in locomotor ataxy and in syphilis, leprosy, etc., as well as in cases of injury to the nerve. The most common situation of the ulcer is at the point of greatest pressure, such as the under aspect of the metatarsophalangeal joint of the big or little toe, or the ball of the great toe. It is more a sinus than an ulcer, and is usually painless. The process is generally very chronic, and if the pressure from walking is continued, the thickened epidermis forms a kind of natural corn-shield around the opening.

**Leprosy.**—The ulcers and other lesions of the skin in non-tuberculated leprosy, which are all dependent on inflammatory lesions of the nerves supplying the affected regions, will be described under the heading of Leprosy (Chapter XXI.).

**Morvan's disease.**—This affection is characterised by paroxysmal attacks of neuralgic pain, ushering in various disorders of sensation and the development of bullæ, followed by ulcers and fissures on the palmar surface of the hands and fingers. Usually one or more whitlows form, and necrosis of the phalanges takes place. A peculiar deformity of the hand, exactly resembling the *main en griffe* of anæsthetic leprosy, is produced. The disease appears to be connected with lesions of the cord. It was first described by Dr. Morvan of Lannilis, in Brittany, in an admirable series of articles published in the *Gazette Hebdomadaire*, 1883, No. 35 *et sqq.* This form of disease seems to be fairly common in certain rural parts of Brittany, and the hypothesis was put forth by Zambaco Pasha of Constantinople, and supported by others, that the cases of Morvan's disease were examples of leprosy attenuated by descent in an ancient population. Repeated pathological observation failed to give support to this hypothesis, and it has now been conclusively proved that Morvan's disease is a special form of syringomyelia, in which trophic skin lesions are prominent.<sup>1</sup>

**Syringomyelia.**—In syringomyelia the skin becomes the seat of various lesions, such as "glossiness," hyperkeratinisation, excessive secretion of sweat, and whitlows, leading to necrosis of the phalanges, as in Morvan's disease. There is nothing characteristic about the skin lesions in syringomyelia, which are tropho-neurotic in origin. The disease itself belongs to the domain of neurology.

**Acute circumscribed œdema** arising suddenly and rapidly subsiding, only to develop in another part, is a lesion of the skin which is now fairly familiar to dermatologists. The onset is usually preceded by slight

<sup>1</sup> Joffroy and Uchard : *Arch. de Méd. Expérimentale*, 1890-95.  
Galloway : *Brit. Journ. Derm.*, vol. vii., p. 304, 1895.



general malaise, with some gastric disturbance. The process consists in infiltration of the skin and subcutaneous tissue, with serous exudation. The œdematous swellings are isolated, well defined, red or reddish in colour, smooth and glistening on the surface. They vary in circumference at the base from a five-shilling piece to the palm of a man's hand (Brocq). They are not the seat of pain or itching, but they sometimes give rise to a slight feeling of tension. The affection is sometimes associated with purpura,<sup>1</sup> and colic and gastro-intestinal disturbance may be concomitants of the skin affection. More often, however, there are no general symptoms. As a rule they last only a few hours, or at most a day or two. The affection may, however, persist a considerable time, as fresh swellings may continue to appear. Any part of the body may be attacked, but the favourite seats of the swellings would seem to be the face and the genitals. Circumscribed œdema may attack the mucous membranes, and if the swellings develop in the pharynx or larynx alarming symptoms may ensue.

The affection is sometimes hereditary. Milroy<sup>2</sup> has traced it through six generations of one family. Among ninety-seven individuals, twenty-two were the subjects of œdema; in all but two the disorder was congenital.

Acute circumscribed œdema can only be confounded with the "giant" form of urticaria, but the itching, which is a characteristic feature of the latter affection, is absent in circumscribed œdema. Moreover, the swellings have not the white centre which is a distinguishing mark of urticarial wheals.

The process is the result of vaso-motor disturbance, the vessels actually implicated being those passing from the subcutaneous layer to the corium. It has been

<sup>1</sup> Bowen: *Journ. of Cut. and Gen.-Urin. Dis.*, Nov., 1892.

<sup>2</sup> *N. Y. Med. Journ.*, Nov. 5, 1892.



suggested that the fundamental factor in the affection is the development of products manufactured in the organism and circulating in the blood.<sup>1</sup> These products, under the operation of some influence, hereditary or acquired, may irritate the sympathetic in different parts of the body and throw the regulating apparatus of the peripheral circulation into confusion. Clinically, acute circumscribed œdema presents certain analogies with other vaso-motor disorders, such as urticaria and exophthalmic goitre. Osler has shown that it is related to peliosis rheumatica and erythema nodosum.

Acute circumscribed œdema must be treated on the lines laid down for urticaria, of which it is a variety.

**Hysterical œdema.**—This is a form of œdema which, though noticed by Sydenham, was fully described only some twenty-five years ago by Charcot, and notably by Renaut.<sup>2</sup> It is usually met with in hysterical subjects, but in cases reported by Strübing<sup>3</sup> nervous symptoms were not an invariable feature, nor, where such symptoms were present, was he satisfied of any immediate causal connection between the hysteria and the state of the skin. The œdema is a hard swelling of a violet colour (*œdème bleu des hystériques*); it scarcely pits even under prolonged pressure. The local temperature is usually subnormal, and numbness and sometimes pain of greater or less severity are complained of. The swelling, which, is, as a rule, associated with hysterical paralysis or contracture, is very persistent; but it is subject to extremely sudden variations under the influence of emotional disturbance or in connection with the menstrual function. If the œdema reaches a certain degree of intensity it may induce gangrene of the skin, followed by deep and wide-spreading

<sup>1</sup> Joseph Collins: *Amer. Journ. Med. Sci.*, Dec., 1892

<sup>2</sup> *Médecine Moderne*, Feb. 20, 1890.

<sup>3</sup> *Arch. f. Derm. u. Syph.*, Feb., 1902, p. 171.

ulceration, which may be mistaken for malignant disease. A remarkable case of an apparently miraculous cure of such a cancer is related by Charcot.<sup>1</sup>

In hysterical œdema the main part of the treatment must be directed to the restoration of the nervous system to a condition of healthy equilibrium.

<sup>1</sup> "La Foi qui Guérit."

## CHAPTER XI

### ARTIFICIAL ERUPTIONS

ARTIFICIAL eruptions include all skin lesions produced by the external or internal action of some substance foreign to the economy. They form naturally two great groups: 1. Eruptions caused by the direct contact of irritant substances with the skin (dermatitis venenata). 2. Eruptions following the ingestion of substances that have a toxic effect on the system, manifesting itself by the production of certain lesions on the skin (toxic dermatitis).

#### EXTERNAL AGENTS

The first of these divisions includes all cutaneous affections produced by external agents. These may be of animal, vegetable, or inorganic nature. Among the animal irritants affecting the skin are:—(a) parasites (lice, fleas, etc.); (b) jelly-fish, gnats, wasps, mosquitoes, etc.; (c) irritating discharges from the body itself (in coryza, gonorrhœa, and diabetes). Vegetable irritants include substances that come accidentally, or in the way of occupation, in contact with the human skin (*Rhus venenata* and *toxicodendron*, *primula obconica*, thapsia, the common orange, eucalyptus leaves, arnica, etc.). Among other substances giving rise to skin eruptions by direct contact may be mentioned mustard, sugar, soap, paraffin, etc. The lesions caused by parasites, whether of animal or of vegetable nature, are described in Chapters XVI. and XVII.

The influence of these various agents on the skin shows the greatest diversity as regards the nature and severity of the lesions. As a general rule, it may be stated that the effect is proportionate to the length of time during which the contact is prolonged. The lesions may simulate almost any disease of the skin. The erythematous type largely predominates, but frequently the eruption takes the form of urticaria or eczema. The severity of the process varies from a simple patch of erythematous redness, readily disappearing under pressure, to violent inflammation of the skin, presenting all the outward characters of the formation of eschars and ending in widespread ulceration and gangrene. Between these limits every degree of the inflammatory process—papules, vesicles, bullæ, wheals, and pustules—may be seen. The erythema is always followed by more or less desquamation; the vesicles, bullæ, and pustules by crusts and scabs. As the result of prolonged irritation the skin sometimes becomes thick, harsh, and wrinkled, while it is at the same time the seat of a chronic eruption characterised by papules and excoriated vesicles and resembling lichenoid eczema (Brocq).

As typical examples of the effect produced by certain vegetable irritants on the skin, mustard and rhus may be taken. The former produces redness and vesication; in some cases the process may run on to an actual dermatitis of erysipelatoid character, and even ulceration may be produced. The lesions may persist for several weeks. There are three varieties of rhus, all of which have strongly irritant properties, but only certain persons are susceptible to their action.<sup>1</sup> Those in whom the idiosyncrasy is very pronounced may be affected even by the volatile emanations from the plant. The eruption is usually eczematous in character; the

<sup>1</sup> On the active principle of *Rhus toxicodendron* and *Rhus venenata*, see Pfaff, *Journ. Exper. Med.*, March, 1897, p. 181.

hands, arms, and face may be enormously swollen. Distant parts may share in the general eruptive disorder. There is always intense itching. Erysipelatoid inflammation of the skin and dermatitis exfoliativa are not unfrequently observed. *Rhus vernix* is much employed in Japan, and to it the so-called "lacquer poisoning" is due. Touching furniture that has been varnished with this substance, or even sleeping in a room where some of the furniture has been so treated, often suffices to induce an attack in those predisposed thereto. The effect on the skin is violent dermatitis, with much swelling of the eyelids and face generally, and with more or less severe headache, dizziness, and constitutional disturbance. Dermatitis also occurs from handling *Primula obconica* and teak.

**Trade eruptions.**—Among eruptions caused by the contact of irritant substances, many are of the nature of diseases of occupation. Thus persons who often handle paraffin, petroleum, tar, bichromate of potash, sugar, salt, lime, sulphur, croton oil, etc., are all subject to eruptions of varying character and severity directly due to their occupation. The same is true of bakers, paperhangers, dyers, tanners, chemists, workers in the silver and electro-plating trades, washerwomen, etc. A case of antimonial and lead poisoning has been recorded by Leslie Roberts. The lesions in each case may assume any of the forms that have been mentioned, but in the majority the affection more or less closely simulates eczema; and in patients predisposed to affections of the skin the trade eruption not seldom develops into true eczema if the irritation causing it is sufficiently prolonged.

**Röntgen-ray dermatitis.**—A form of artificial dermatitis is set up by prolonged exposure to the Röntgen rays. X-ray dermatitis may be considered as (a) an acute inflammation resulting from a single over-exposure

or several exposures which are excessive in the aggregate, or (b) as a chronic dermatitis affecting X-ray operators or those who are constantly exposed to the rays over prolonged periods. Acute X-ray dermatitis occurs in three or four degrees of severity, which have been compared to those of ordinary burns. The first is erythema, with swelling and desquamation; the second, erythema with vesicle and bleb formation; the third, ulceration with destruction of the epidermis, corium, and, to a greater or less extent, of the subcutaneous tissue. In the last necrosis may ensue, the necrosed tissues persisting for several months or even a year or more. These lesions are accompanied by severe pain, and leave deep vascular scars. The inflammation is apt to recur periodically. It is often sharply limited, stopping abruptly where the skin is covered by the clothing. Chronic X-ray dermatitis begins with erythema, pigmentation, atrophy, and the formation of telangiectases, on the exposed parts—usually the backs of the hands. The skin becomes thin, roughened, and fissured. In course of time local hyperkeratosis occurs and the small warty growths thus formed may eventually become epitheliomatous. Dystrophy of the nails is also a common feature; these become pitted, striated, and brittle, and may be exfoliated. The condition described above occurs after many months or years, in those who have not taken means to protect the skin from the rays. It appears to be aggravated by the static effects of the tube and by the use of developing solutions. Short of operative procedures which may become necessary, many applications have been suggested, but without much effect in alleviating the pain or subduing the process.

**Feigned eruptions.**—Artificial eruptions are sometimes produced by the patients themselves, either to excite sympathy or to escape work. The subjects are

mostly hysterical girls, beggars, prisoners, malingerers, or lunatics. Some of these impostors become by practice artists of sufficient skill to deceive the unwary practitioner. The substances used are chiefly croton oil, nitric acid, carbolic acid, essence of turpentine, iodine, mustard, thapsia, cantharides, and urine. The points which should give rise to suspicion are the situation of the lesion (breast, limbs, or other easily accessible part, the left side being for obvious reasons much more often chosen as the seat of operation than the right); the total absence of eruption in other situations; the anomalous outline of the lesions, which may be angular, and may resemble nothing seen in disease; the want of symmetry, or less frequently the too perfect symmetry, at once suggesting the work of art rather than of nature. Circumstantial evidence of fraud is also frequently supplied by the smell of the agent with which the lesions have been produced (*e.g.* turpentine), by stains on the skin or the clothes (*e.g.* nitric acid), or by particles of mustard or other irritant being found on the patient.

The affections most often simulated are erythema, ulcerations, and chromidrosis (caused by blacklead, etc.). Colcott Fox and Sangster have reported cases in which sores on the skin were produced by perseveringly rubbing a spot with the ends of the fingers moistened with saliva.<sup>1</sup>

In the French army thapsia juice is in great favour with malingerers, on account of the erysipelas-like inflammation of the skin which can be induced by means of it.<sup>2</sup> Patients of this kind will often inflict a good deal of pain on themselves, and will snip out pieces of skin with scissors, burn themselves with lighted matches, etc., with a fortitude worthy of a better cause.

<sup>1</sup> *Lancet*, Dec. 30, 1882.

<sup>2</sup> *Arch. de Méd. et de Phar. Mil.*



## INTERNAL AGENTS

Among eruptions caused by internal agents are included all those produced by substances swallowed either as food or as medicine. In the former case the agent is generally a particular article of diet in regard to which the patient exhibits an idiosyncrasy. The eruption which in many persons follows the eating of shell-fish, especially mussels, may be taken as the type of this skin affection *ab ingestis*. The process has already been described under Urticaria (p. 77), and need not be further referred to here.

**Drug eruptions.**—Drug eruptions, properly speaking, include those caused by the external as well as the internal use of medicinal substances, inasmuch as a drug applied to, and producing lesions in, the skin may also be absorbed into the circulation, so that it is difficult to separate the one effect from the other. In this province, as Brocq well says, individual susceptibility is the most important factor; it is that which determines the appearance of the eruption and the form which it assumes. The eruptions caused by drugs present a variety of type that defies all classification: they may be erythematous, urticarial, papular, vesicular, bullous, and even cancerous—at least indirectly. A particular patient generally reacts in the same way to the same drug. The lesions are seldom multiform at a given time, though almost every variety may be exhibited in the course of an eruption at different stages.

As for the mode in which drugs produce eruptions, various theories have been advanced. According to Farquharson, when from any cause there is diminished activity of the kidneys, which are the natural channels by which most medicinal substances are eliminated, the skin vicariously assumes the functions of these organs, and the drug, in working its way outwards

through the cutaneous glands, irritates the skin and produces lesions of various kinds. This theory would imply that before an eruption can be produced the drug must have accumulated to a greater or less amount within the body. This, however, is not by any means the rule, for the smallest dose of a drug will produce an eruption in some persons, while in other cases very large doses may be taken for a long time continuously without producing any effect whatever on the skin. But in the case of the halogens it is probable that the eruptions which they produce are due to the excretion of the drug by the cutaneous glands. Another theory is that certain drugs have an elective affinity for certain anatomical elements, and that in this way some medicinal substances naturally gravitate, as it were, to the cutaneous glands. In proof of this is adduced the fact that traces of the drug are often found in the lesions which it has produced. This, however, is probably nothing more than an accident; it is certain that the most careful tests frequently fail to reveal any trace of the drug in the cutaneous lesions, while it is readily found in the urine.

Behrend has advanced the view that drug eruptions, with the exception of those caused by the bromides and iodides and the erythemas produced by belladonna, hyoscyamus, stramonium, and possibly arsenic, are due to the presence in the blood of some foreign material generated by the action of the drug; this material he thinks probably of chemical nature. It is a sufficient refutation of this theory that drug eruptions are often confined to particular parts of the cutaneous surface, whereas, if they were due to an alteration in the blood, one would expect to see them wherever that fluid circulates. My own view is that—at least in the majority of cases—the mechanism of drug eruptions is the same as that of the erythematous, vesicular, bullous, and

pustular affections which they simulate—that is to say, the process is angio-neurotic in character. It has already been explained that the simple mechanism of vaso-motor paralysis, followed by the phenomena of congestion and inflammation in varying degrees, is sufficient to account for the production of an ascending series of lesions, ranging from simple erythema up to gangrene; and inasmuch as all these various lesions are simulated by drug eruptions, there appears to be no reason to look farther for an explanation of their mode of action. In short, it may be stated that drug eruptions arise in response to irritation of nerve endings, as when medicinal substances are applied externally to the skin, or to irritation of nerve centres (vaso-motor), as when drugs are taken internally. In some cases, as Drs. Engman and Mook say of iodine and bromine eruptions,<sup>1</sup> it may be that lesions are prone to appear on the sites of previous inflammation, and that traumata, pressure, and quick changes of temperature may precipitate an eruption in tissues charged with the drug.

Morrow has pointed out that a large proportion of the medicinal agents which determine eruptive disturbance act specifically upon the nervous system. From this point of view, the individual predisposition or idiosyncrasy, which is a necessary underlying condition for the production of drug eruptions, is, as has already been said in a previous chapter, nothing but abnormal excitability or instability of the nervous system. This may possibly be combined in the class of cases under consideration with undue susceptibility of the skin to irritation. The skin, being the organ of tactile sensation, is in the most intimate connection with the nervous system. So close, indeed, in some persons is the sympathy between the nerve centres and the skin, that the latter is, as it were, a mirror on which every passing shade of

<sup>1</sup> *Trans. Amer. Derm. Assoc.*, 1906, p. 162.

nervous impression or mental emotion is reflected. It is not, therefore, to be wondered at that it should often respond sympathetically to nervous disturbance produced by central or peripheral irritation. In the case of drugs which excite or irritate the nervous system, it may be laid down as a general rule that the greater the nervous disturbance, the more severe will be its manifestations on the skin.<sup>1</sup>

The **diagnosis** of drug eruptions is not always easy. Those following the external application of irritating substances are usually limited to the part with which the agent has been in contact ; moreover, in some cases the lesions themselves present certain definite characters by which they can be recognised. These will be referred to in connection with the several agents. The rashes produced by drugs taken internally often simulate those of the specific fevers, or of certain toxæmic conditions, so closely that, if rise of temperature and constitutional disturbance happen to be associated with them, it is almost impossible to distinguish them. Thus, copaiba eruption resembles that of measles or smallpox, and those of belladonna and quinine that of scarlet fever. An important point is the sudden occurrence of an eruption during the administration of a drug ; and if, on discontinuing the use of that drug, the eruption vanishes, it may safely be concluded that the two stood to each other in the relation of cause and effect. On the other hand, a drug eruption sometimes lasts for a considerable time after the drug is stopped. Another diagnostic point is the presence of the drug in the urine, the saliva, or the sweat. This, as a rule, holds good only when

<sup>1</sup> For a lucid discussion of the mode of action of drugs in producing skin lesions the reader is referred to the valuable papers by H. G. Brooke on " Behrend's Division of Drug Rashes into Specific and Dynamic Groups " (*Brit. Journ. Derm.*, Oct., 1890), and to Colcott Fox's " Contribution to the Study of Drug Eruptions " (*ibid.*, Nov., 1890).

the drug has been taken in large quantities or for a long period of time. In the case of certain substances—such as turpentine and other essential oils—their presence in the urine is often obvious to the sense of smell; in the case of the balsamic preparations the drug reveals itself by the smell of the patient's breath. Others, again,—such as arsenic and nitrate of silver—produce a characteristic discoloration of the skin which is sufficient of itself to indicate the cause. As a general rule, it may be said that in the case of eruptions appearing suddenly, or presenting features different from those seen in idiopathic skin affections, the practitioner should always make careful inquiry as to what medicines the patient has been taking. It is impossible, within the limits of a small text-book, to deal exhaustively with all the varied lesions that may follow the use of drugs; and, after all, there are only two drugs that cause eruptions of a sufficiently definite character to be pathognomonic. These are bromine and iodine and their compounds. The skin lesions to which these substances are apt to give rise will therefore be considered in some detail, and a brief summary of the principal effects on the skin that may be produced by some of the drugs in everyday use—such as arsenic, copaiba, mercury, opium, belladonna, and quinine—will be given. The effects of other drugs on the skin are indicated in a tabular summary (*see* p. 239).

**Bromide eruptions.**—Characteristic eruptions are caused by the use of bromine or its compounds—bromides of potassium, ammonium, sodium, etc. The primary lesions may be papules, vesicles, wheals, bullæ, or erythematous patches, but by far the most common and characteristic lesion is a papulo-pustular eruption (bromic acne) which is said to occur in about 75 per cent. of all patients treated with bromide of potassium. Bromic acne presents a considerable resemblance to





PLATE XIII.—ERUPTION DUE TO BROMIDE OF POTASSIUM  
(DR. COLCOTT FOX'S CASE).



acne vulgaris. Unlike the latter, however, the bromic lesion does not confine itself to parts rich in sebaceous glands, and the papulo-pustules always develop without the antecedent existence of comedones (Morrow). Bromic acne shows a marked preference for hairy parts of the skin. The papules, as a rule, precede the pustules, and they are seen about the forehead and nose and the back of the shoulders, especially in persons whose skin is thick and greasy. They commence as small hyperæmic patches on an indurated base. Most of them are pierced by a hair. They may undergo no change for weeks, or they may quickly become transformed into pustules of a yellowish-white colour. Sooner or later the contents escape and a hard nodule or pigmented spot remains. They often give rise to small rounded cicatrices. This pustular eruption generally persists as long as the administration of the drug is continued, and the number of lesions increases as the dose is augmented (Veiel). On discontinuing the drug, the eruption, as a rule, disappears in from one to three weeks. In women and in children taking bromides, and in infants nursed by mothers who are taking them, the predominant type of lesion caused by the drug is the "confluent acne" described by Cholmeley. This at first resembles varicella, the vesicles, however, running together instead of drying up, and forming clusters, which continue to enlarge and finally suppurate. In course of time, in this way, flattened elevations are formed, covered with thick light-brown crusts and surrounded by a zone of redness. There is a tendency in these lesions to papillary hypertrophy, sometimes to such an extent as to simulate condylomata. The legs are the chief seat of the eruption. (Plate XIII.)

Furuncular and anthracoid forms of bromide eruption are not uncommon. The boils, which are mostly of small size, are commonly seen in the situations generally

affected by ordinary furuncles (forehead, neck, hairy parts of face), while the anthracoid swellings are usually found on the face and limbs, seldom on the trunk. The swellings are red in colour and well defined. The tops are dotted with numerous yellow points which give them something of the appearance of a carbuncle. After a time a scab is formed, and involution takes place rapidly if the drug is discontinued. If it is pushed, however, ulceration is pretty sure to take place. Sometimes the bromide eruption assumes an ulcerative character almost from the first. Large, irregular ulcerated patches form symmetrically on the legs. The granulomatous tumours arising in such cases may be mistaken for certain other forms of tumour.<sup>1</sup> The drug may be continued, to allay the discomfort from eruptions of which it is actually the cause. The ulcerated surface is firm, and is composed of large raised masses often papillomatous in appearance. Warty growths on the face have been described as a result of bromide medication (Veiel). Though bullous elements are sometimes associated with other lesions due to bromide, true bullæ without more or less solid base and with fluid contents are rare (Colcott Fox). The appearance of bromide eruptions is not, as a rule, accompanied by fever or constitutional disorder. They not uncommonly develop on scar tissue. They often begin in the neighbourhood of the sebaceous glands and hair follicles, but are not by any means confined to these situations. Idiosyncrasy plays a comparatively subordinate part in the production of bromide eruptions. So constant, indeed, is their occurrence, given the necessary conditions of dose and persistence of administration, that the changes in the skin may with propriety be classed among the exaggerated physiological effects of the drug. Idiosyncrasy does, however, come into

<sup>1</sup> Cf. Jacquet: "The St. Louis Atlas of Skin Diseases" (part vii., 1897). Galloway: *Brit. Journ. Derm.*, vol. ii., p. 156.

play in some cases when very small doses are followed by the development on the skin of some of the lesions that have been described. The theory of Engman and Mook <sup>1</sup> as to the *modus operandi* by which bromine (like iodine) produces its effects is that in certain conditions the drug circulating in the body tissues acts as a toxin, causing at points of local disturbance—the sites of previous irritation or of injury—all the symptoms of an inflammation. Their suggestion is that it plays the part of a toxin when there is a disturbance of the normal equilibrium between the drug contained in the serum and the tissues. My own view is that the drug probably produces its effect through the nervous system.

The acneiform bromide eruptions lesions are easily distinguished from those of acne vulgaris by the absence of comedones, and by their occurrence at any period of life and on any part of the body. The anthracoid swellings are differentiated from carbuncle by the absence of a red border and of brawny induration around. In many cases the smell of bromine in the breath and its presence in the urine at once point to the true origin of the skin lesions.

**Iodic eruptions.**—Eruptions produced by the action of iodine or its salts (iodide of potassium, iodide of ammonium, iodide of sodium, etc.) are erythematous, papular, urticarial, vesicular, and sometimes bullous in type. The erythematous form is the most frequent among the earlier manifestations of the influence of the drug on the skin. The redness may be scattered about in small or large patches, or pretty generally diffused, the favourite situations being the chest, the face, and the forearms. At a later period papules and wheals may develop on the erythematous ground, and on these wheals large capillary vessels are frequently seen. Vesicles may also develop on the erythematous patches.

<sup>1</sup> *Loc. cit.*

These are usually discrete, and are sometimes associated with wheals, around which a ring of clear vesicles may form. The bullous type of eruption is comparatively rare. The bullæ are sometimes mingled with vesicles and pustules. They may be as large as a pigeon's egg, and if two or three coalesce, as they sometimes do, enormous blisters may be formed.

The iodic eruptions often commence as hard papules which have the shot-like feel characteristic of the earliest stage of smallpox pustules. As the papules become transformed into vesicles they frequently show a tendency to umbilication. They are for the most part surrounded by an erythematous areola, and the skin about them is generally more or less infiltrated. The papulopustular form is the most common and the most characteristic eruption caused by the iodides. The face, the upper part of the chest, the backs of the shoulders, and the arms are the parts in which it chiefly shows itself. This form also begins as shot-like papules, which become pustular either at the summit or throughout their whole depth as they develop. These pustules dry up and form crusts, which leave a scar on becoming detached. In other cases the papules develop into vesicles and even bullæ, or they may become transformed into red, hard nodules deeply implanted in the tissues and disappearing very slowly. From these elementary lesions various more complex forms of eruptions—echthymatous, condylomatoid, molluscoid, etc.—may arise. Among the other forms of eruption caused by iodides there is one of carbuncular type resembling the "confluent acne" already described as a frequent effect of the bromides. The little boil-like nodules are violaceous in colour, with a depressed centre covered with a scab and studded at the circumference with numerous sebaceous-looking pustules. When these lesions disappear they leave a brownish scar. A purpuric eruption sometimes appears

on the legs as the result of treatment with iodides (Fournier). The petechiæ almost always come out within a very few days of the beginning of treatment. Sir Stephen Mackenzie has reported a fatal case of iodic purpura in a child caused by a single dose of two and a half grains.<sup>1</sup> A nodular form of iodide eruption has been described (Fig. 4). Hard, red, painful nodules,

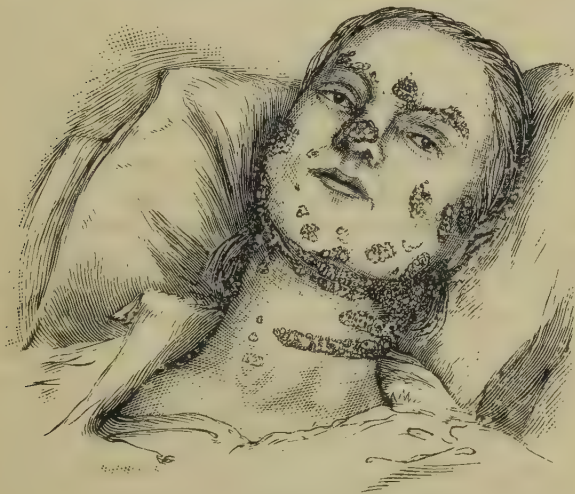


Fig. 4.—Nodular Iodic Eruption.

(From a photograph taken by Mr. Crowle.)

varying in size from a nut to an egg, come out on the face, neck, buttocks, thighs, and calves. The eruption closely resembles erythema nodosum. As a rule, the effect of iodides on the skin is restricted to one type of lesion in any given case, but sometimes the eruption is polymorphous. Iodide eruptions are often associated with renal and cardiac inadequacy, and, though usually of little practical importance, occasionally

<sup>1</sup> *Illustr. Med. News*, Nov. 17, 1888.

assume a grave character and react unfavourably or even dangerously on the patient's general condition. The eruption generally shows itself within a week of the commencement of administration of the drug, but the interval varies according to dose and individual susceptibility. After it has subsided one small dose may suffice to bring it out again in a very few hours. According to some observers, the salts of iodine vary somewhat in their power of producing skin eruptions, the iodide of ammonium being the most and iodide of sodium the least active in this direction.

In the early stages the papular form of iodic eruption may simulate smallpox, and the resemblance is increased by the umbilication which occurs when the papules develop into vesicles. The absence of severe constitutional symptoms, however, and the rapid disappearance of the eruption on discontinuing the drug, will quickly clear up any doubt that may exist. In some cases iodic eruptions may simulate acne or varicella, but here again the coincidence of the skin lesions with the administration of the drug, their aggravation by increase of the dose, and their disappearance on suspending the treatment, will prevent any misapprehension as to their nature.

Rupial and other forms of iodide eruption may be mistaken for syphilitic lesions, and, in the words of Morrow, "iodide of potassium may be continued, possibly in increasing doses, for the very condition which it has caused."

On comparing the eruptions caused by bromides with those caused by iodides, it will be seen that the essential lesion in each is a dermatitis showing a tendency to localisation about the sebaceous glands. In each the eruption may take the form of papules, pustules, vesicles, bullæ, nodules, and almost every variety of combination of these elementary lesions. These



often coalesce, and large swellings with crusts, warty excrescences, and ulcers may result. The bromide eruptions are, as a rule, slower in their development and less painful than those caused by the iodides. Moreover, the latter are usually smaller than the former, and confluence is less frequently observed. In the case of both bromide and iodide eruptions the parts chiefly affected are the face and limbs, especially around hair follicles.

**Iodoform.**—The use of iodoform in surgical dressings sometimes causes irritation of the skin. This is in the majority of cases accompanied by greater or less constitutional disturbance. The rash is generally erythematous in character, papules, vesicles, and even bullæ not unfrequently developing on the inflamed surface. Sometimes the eruption rather approximates to the eczematous type. Purpuric lesions have in rare cases been observed in connection with the application of iodoform. In cases where idiosyncrasy in relation to the drug is pronounced, intense itching, with rise of temperature and swelling of the hands, arms, and face, may be caused by simple contact, as in dressing a wound with an iodoform bandage (Morrow).

**Orthoform.**—Orthoform, when applied to ulcerated surfaces, may also give rise to eruptions. Dubreuilh<sup>1</sup> groups them under two heads: erythematous eruptions, with or without complicating vesiculation or pustulation; and gangrene. In the latter case the appearance is said to resemble that of lupus vulgaris treated by pyrogallie acid.

**Arsenic.**—Arsenic, when applied to the skin, acts as an irritant, causing dermatitis; used in a concentrated form, and for a long period, it is a caustic. The irritant effects are usually seen after the use of the drug in lotions for the complexion, in dusting powders for children, and

<sup>1</sup> *La Presse Méd.*, No. 40, 1901.



in various industrial products—notably artificial flowers, green wall-papers, certain aniline dyes (in stockings, under-vests, etc.). The resulting lesion is at first erythematous in character, and on this vesicles and pustules often develop; and sometimes, especially about the scrotum and pudenda, small, shallow, clean-cut ulcers may result. When given internally, arsenic may cause exacerbation of acute inflammatory disorders of the skin. When no previous cutaneous affection exists, the internal administration of the drug may cause dermatitis, with papular, vesicular, urticarial, petechial, and pustular lesions; boils and carbuncles and multiple ulcerations are also sometimes observed. A general scarlatiniform eruption, with inflammation of the conjunctiva and mucous membrane of the respiratory passages (leading in the nose not unfrequently to ulceration and perforation of the septum), has sometimes been observed. A common effect of arsenic on the skin is the production of a peculiar greyish or brownish discoloration, with desquamation in various parts. The prolonged administration of the drug also sometimes gives rise to general thickening of the epidermis on the palms and soles,<sup>1</sup> and occasionally to the formation of small corns; if the drug is persevered with, these corns may assume an epitheliomatous character (Hutchinson, Brocq, Hartzell, and others). Dr. Aldrich suggests that arsenical poisoning is one cause of white transverse lines on the nails. In the case which drew his attention to the point, the white lines, judging from the

<sup>1</sup> For a remarkable example of this effect of arsenic, see "A Case of Keratosis of the Palms and Soles," by Pringle, in the *Brit. Journ. Derm.*, 1891, p. 390. Another striking case, in which the keratosis was followed by cancer, is described by Dr. Schamberg (*Trans. Amer. Derm. Assoc.*, 1906, p. 144). It is possible that some of the cases in which keratosis of the palms and soles has seemed to follow lichen (see Brooke, *Brit. Journ. Derm.*, 1891, p. 19) may have been of arsenical origin.

growth of the nail, corresponded to the time when the patient had taken arsenic with suicidal intent, and in other cases also he succeeded in obtaining confirmatory evidence.<sup>1</sup> It is well known that arsenic, like other drugs of the metallic group, has been given for a long time in large doses, as in chorea, and that in such cases it sometimes produces peripheral neuritis; this fact probably explains the occurrence of zoster and other forms of herpes in association with treatment by arsenic.<sup>2</sup>

On the basis of facts observed in the epidemic of arsenical beer poisoning which occurred in the north of England and Midland counties in 1900, Brooke and Leslie Roberts<sup>3</sup> conclude that arsenic and the other members of the nitrogen group must be distinguished from all other medicaments by the fact that their action, whether therapeutic, pharmacological, or toxicological, is entirely dynamic, and consists essentially in altering the ratio to the tissues of one of the most active normal constituents of the body, namely, oxygen.

**Chloral.**—Chloral hydrate acts as an irritant when applied to the skin, and Ritter<sup>4</sup> thinks it superior in some ways to cantharides as a vesicant. When given internally it occasionally causes a diffuse erythematous eruption on the skin; this generally begins on the face, and may spread to the neck and chest, and may also affect the extremities. An erysipelatous-looking flushing of the head and face is one of the commonest forms of chloral rash. On other parts of the body the eruption sometimes occurs in patches or scattered dusky red spots, giving the skin a mottled appearance (Morrow).

<sup>1</sup> *Amer. Journ. Med. Sci.*, April, 1904, p. 702.

<sup>2</sup> Cf. Meneau: "Les Dermatites Arsénicales," *Ann. de Derm. et de Syph.*, April, 1897.

<sup>3</sup> *Brit. Journ. Derm.*, April, 1901.

<sup>4</sup> Quoted by Morrow, *op. cit.*

The rash comes out, as a rule, within ten days of the commencement of administration, is unattended with constitutional disturbance, and quickly fades. The taking of food and the drinking of tea, and especially of alcohol, has a marked effect in intensifying and extending the eruption; and even when chloral is no longer being taken, the rash may for some days come out after each meal. In some cases it is distinctly scarlatiniform in character, and may spread over the entire surface of the skin. This condition is often accompanied by fever and is followed by desquamation. Papular, urticarial, vesicular, and petechial eruptions have also been described as occurring in connection with the taking of chloral. The mucous membranes may be affected as well as the skin. Chloral rash bears a close resemblance to that produced by copaiba, belladonna, and quinine. The characteristic odour of copaiba is, however, absent, while the throat is not affected as in the case of belladonna; the absence of mydriasis, which is so characteristic an effect of the latter drug, is another point of distinction. From quinine eruption the skin lesions caused by chloral can be distinguished by the marked effect which a full meal or alcohol almost always has on the latter. From measles and scarlatina chloral eruption is differentiated by the absence of coryza and sore throat respectively.

**Copaiba and cubebs.**—These drugs cause eruptions on the skin that vary in character, the erythematous and papular forms, however, predominating. The lesions are generally seen around the wrists, ankles, and knees; often on the hands and feet, breast, and abdomen; sometimes they spread over the whole body. The most characteristic effect of copaiba on the skin is the so-called “balsamic erythema,” which consists of small discrete erythematous papules, apparently seated at the follicles, and sometimes agminated into patches.

These patches may also become confluent. Vesicular, urticarial, bullous, and petechial forms also occur, and the eruption may simulate erythema multiforme. The copaiba rash might possibly, from its appearance, be mistaken for an erythematous syphilide, or for the exanthem of an eruptive fever, such as measles or smallpox. The characteristic violet-like odour of the drug will, in the majority of cases, prevent such an error; but it must be remembered that the balsamic eruption and erythematous syphilide occasionally coexist.

**Belladonna.**—The rash caused by the use (external or internal) of belladonna or atropine is generally erythematous in type, and of a dark red or copper colour; it is, as a rule, diffuse, and closely resembles the exanthem of scarlet fever. The face, neck, and trunk are the usual seats of the eruption, and a stinging or pricking sensation in the affected skin is commonly complained of. The rash quickly disappears, and is not followed by desquamation. Dilatation of the pupil assists in making a diagnosis. Children with fine skins are particularly subject to eruptions from the use of belladonna. In ophthalmic practice the use of atropine is sometimes followed by severe dermatitis resembling erysipelas.

**Chlorine.**—An acneiform eruption caused by contact with chlorine has been noted by Herxheimer. Bettmann<sup>1</sup> has reported two cases in powerful men who had been at work cleaning out the place for the manufacture of hydrochloric acid in a chemical factory. The disease was very obstinate.

**Formalin.**—The use of formalin occasionally produces eruptions on the skin. In a case under the care of Dr. Lewis G. Glover, of Hampstead,<sup>2</sup> a young lady was attacked by violent urticaria, practically covering

<sup>1</sup> *Deut. med. Woch.*, July 4, 1901.

<sup>2</sup> *Brit. Journ. Derm.*, 1901, p. 154.

the whole body, after using a hair lotion containing formalin in bay rum. The face was swollen so that the features were scarcely recognisable, and great wheals were observed on the trunk and extremities. A large amount of erythema was also present, and the discomfort was so great that sleep was impossible. No local dermatitis on the scalp was produced. An eczematoid eruption on the fingers is sometimes caused by handling solutions of the substance in the preparation of museum specimens.<sup>1</sup> After putting cotton-wool soaked in a weak solution of formalin into a hollow tooth, Fisher noted an urticarial eruption on his own body.

**Mercury.**—The irritation of the skin caused by the external use of mercury varies, according to the strength of the application and the length of time contact is prolonged, from slight erythema to severe dermatitis, which may run on to ulceration and sloughing. The most common lesion is erythematous redness with the formation of vesicles, especially around the hair follicles; these vesicles often develop into pustules. Such eruptions have been very common since corrosive sublimate became fashionable among surgeons as an antiseptic. Certain widely advertised preparations for the removal of pimples and blotches from the face contain corrosive sublimate, and serious effects, local and general, have been known to follow the use of them. When taken internally, mercury may produce almost any kind of skin lesion, and the effect of the drug may simulate urticaria, herpes, impetigo, or furuncle; sometimes it produces extensive ulceration. In the majority of cases, however, the eruption is erythematous or scarlatiniform in type; desquamation sometimes follows. In certain cases violent eruptions, resembling pityriasis rubra, may be produced. The skin lesions caused by the internal use of mercury are

<sup>1</sup> T. Fisher: *Brit. Journ. Derm.*, 1901, p. 306.

not, unfrequently, however, polymorphic. The eruption is often preceded by itching and dryness of the skin, and in severe cases it is ushered in by constitutional disorder. The symptoms often come on quite suddenly, not unfrequently after a single dose of the drug; but Thimm<sup>1</sup> reports a case in which a bullous eruption appeared so late as eighteen days after the last of twelve mercurial inunctions. The *malaise* generally ceases on the appearance of the eruption.

The visceral and other symptoms of mercurialism (stomatitis, etc.) are frequent accompaniments of the skin eruption. The average duration of the latter is from one to three weeks, but the condition may persist for six months or more. The diagnosis is not always easy; measles and the other exanthematous fevers have to be excluded, and all other possible sources of drug eruption have also to be eliminated. When the affection is severe the prognosis is often serious. A case of malignant mercurial dermatitis ending in death has been recorded by Mari.<sup>2</sup>

**Opium.**—The intolerable itching sometimes caused by opium was known to Dioscorides and other ancient writers, who speak of it as *pruritus opii*. The eruption caused by it is mostly scarlatiniform in character; sometimes it is morbilliform, consisting of small discrete spots, bright or dusky red in colour. The face, neck, and flexor surfaces are the usual seats of the eruption, the appearance of which is generally preceded by local heat and itching. The rash may involve the whole cutaneous surface, making the patient “as red as a lobster.” Desquamation is the rule. The rash quickly disappears on discontinuing the drug; but in those susceptible in this way to the influence of opium an erup-

<sup>1</sup> *Derm. Zeitschr.*, Bd. lx., Hft. 6, Dec., 1902.

<sup>2</sup> *Giorn. Ital. delle Mal. Vener. e della Pelle*, fasc. ii., 1896; *Brit. Journ. Derm.*, vol. ix., 1897, p. 118.



tion is almost certain to follow the administration of it in any form. Similar effects often result from the internal or subcutaneous administration of morphia. The latter is also apt to cause local inflammation and abscesses in the skin, unless proper antiseptic precautions are employed; these conditions may lead to the formation of very obstinate ulcers.

**Quinine.**—Quinine, and all preparations of cinchona, may give rise to skin eruptions. Externally applied, it is not an irritant to the healthy skin, but workers in quinine factories are subject to eruptions which are no doubt due to absorption of the drug. These lesions are mostly eczematous in character, and generally come on suddenly; the parts chiefly affected are the hands and forearms, thighs, and genitals. Lichenoid and urticarial eruptions have been seen to follow the application of ointments or solutions containing sulphate of quinine. The hypodermic use of the drug is sometimes followed by widespread erythema, abscesses at the sites of injection, and ulceration. When given internally it causes skin lesions of the most various types. The erythematous form predominates; but macules, papules, vesicles, bullæ, pustules, wheals, and petechiæ are not uncommon. On analysing sixty cases of quinine eruption, published during a period of ten years, Morrow<sup>1</sup> found that in thirty-eight the general character of the eruption was erythematous ("scarlatinal," "measly," etc.); in twelve it was urticarial, with "œdema," "puffiness of the face," etc.; in a few cases it was papular and vesicular or petechial. Bullous and gangrenous forms of quinine eruption have also been described. In diagnosis, the chief source of possible confusion is the close resemblance of the rash to that of scarlatina in many cases—a likeness which is made all the greater by the fact that the quinine eruption may affect the mucous

<sup>1</sup> *N. Y. Med. Journ.*, March, 1880.



membrane of the throat as well as the skin. Usually, however, the quinine eruption is not accompanied by fever; but sometimes there is considerable constitutional disturbance. The subsidence of the eruption on discontinuing the drug and the presence of the latter in the urine are the points of distinction.

**Salicylic acid, salicylate of soda.**—Externally applied, salicylic acid is more irritating than carbolic acid, even a 2 per cent. solution causing the appearance of irritable vesicles in the neighbourhood of wounds (Callender). The internal use both of salicylic acid and of salicylate of soda sometimes gives rise to erythematous, urticarial, vesicular, pemphigoid, and petechial lesions on the skin.<sup>1</sup> The erythematous lesions resemble those caused by antipyrin, chloral, etc., and their appearance is generally accompanied by some febrile disturbance. Sometimes the rash closely resembles that of scarlet fever, and as it is occasionally accompanied by sore throat and systemic disturbance, it may be difficult to distinguish the one condition from the other. In some cases the administration of the drug is followed by the appearance of a morbilliform rash.

A summary of the eruptions caused by other drugs in common use follows:—

Aconite	<i>Externally applied:</i> Redness, itching vesicles, erysipelatoid inflammation. <i>Internally administered:</i> Vesicular eruption with formication and itching; sometimes pustules and blebs.
Antifebrin	<i>Internally administered:</i> Slate-coloured cyanosis.
Antimony	<i>Externally applied:</i> Varioloid eruption; sometimes ecthymatous ulcers and extensive destruction of tissue.

<sup>1</sup> See Shepherd: *Journ. Cut. and Gen.-Urin. Dis.*, vol. xiv., p. 16.

Antimony	<i>Internally administered</i> : Vesiculo-pustular and urticarial eruptions ; sometimes varicoid eruption like that produced by external application.
Antipyrin	<i>Internally administered</i> : Erythematous eruption, with profuse sweating and great itching, on chest, abdomen, back, sometimes on limbs, especially flexor surfaces. Rash usually described as "measly." Occasionally the penis turns black ( <i>verge noire</i> ).
Argenti nitrates	<i>Internally administered</i> : Peculiar bluish-grey or greyish-black discoloration of skin, somewhat resembling Addison's disease, especially on face and flexor aspects of limbs (argyria). Erythematous and papular eruption with pruritus.
Arnica	<i>Externally applied</i> : Erythematovesicular eruption resembling that caused by "poison oak" ; often eczematous ; sometimes erysipelatous dermatitis. <i>Internally administered</i> : Erythema with formication ; diaphoresis.
Balsam of Peru	<i>Externally applied</i> : Erythematous, eczematous, and urticarial eruptions.
Boric acid	<i>Externally applied</i> : Erythematous rash on face, trunk, and extremities (after washing out pleura) ; acute dermatitis of scrotum and thighs after injection into bladder ; impetigo after long use of borax. Sometimes burning and charring of skin.
Borate of Sodium	<i>Internally administered</i> : Eruption like psoriasis (Gowers) ; also eruption like pityriasis rubra.
Cade oil	<i>Externally applied</i> : Erythematous eruption, which may spread over large area ; erysipelatoid dermatitis ; papular eruption, like "tar acne" on hairy parts ( <i>Sycosis cadique</i> of Bazin).
Cannabis indica	<i>Internally administered</i> : Papulo-vesicular eruption on scalp, face, neck, trunk, and limbs. Only one case on record (Hyde). In poisoning by the drug, œdema of face.

Cantharides	<i>Externally applied</i> : Vesicant; skin around blister may become covered with vesicles, which are often confluent; eruption sometimes assumes eczematous character, and extends over whole body. In persons of feeble constitution ulceration and gangrene may follow application.
Carbolic acid	<i>Externally applied</i> : Erythema up to complete destruction of tissues, according to strength of preparation. Rash often accompanied by toxic effects (head-ache, vomiting, oliguria, and dark urine).
Chrysarobin Chrysophanic acid	<i>Externally applied</i> : Hyperæmia with prune-juice discoloration of skin; erythematous, papular, pustular, and furuncular eruption. Erysipelas-like swelling of head and face. Exfoliative dermatitis.
Croton oil	<i>Externally applied</i> : Erythematous, papular, vesicular, pustular eruptions. Sometimes secondary eruptions appear on distant parts (from absorption?).
Ergot	<i>Hypodermically given</i> : Painful black swelling at site of puncture, phlegmonous inflammation round it. <i>Internally administered</i> : Vesicular, pustular, petechial, furuncular lesions, sphacelus, gangrene of extremities (ergotism).
Iron	<i>Internally administered</i> : Acneiform eruption on face, breast, and neck. Iodide of iron causes erythematous, papular, urticarial, eczematous lesions (probably chiefly from iodine contained in it).
Lead (acetate and carbonate)	<i>Externally applied</i> : Blackish or brownish discoloration. <i>Internally administered</i> : Erythematous rash; petechiæ.
Nux vomica : strychnia	<i>Internally administered</i> : Pruritus and formication. Miliary or scarlatiniform eruption.
Phenacetin	<i>Internally administered</i> : Great heat and erythematous eruption on face.

Pix liquida (tar)	<p><i>Externally applied:</i> Erythematous, papular, vesicular, pustular eruptions. Tar acne consisting of small hard red nodules, distinguishable from ordinary acne by black tarry points in centre of each papule; they persist long after the application, and may require three or four weeks for their complete involution. Erythema papulatum and violent dermatitis may follow the application of a pitch-plaster.</p> <p><i>Internally administered:</i> Copious red rash with fever, nausea, etc.; erythematous, rubeoloid, urticarial lesions.</p>
Podophyllin	<p><i>Externally applied:</i> (in workmen who pulverise it) Irritant, especially on scrotum and genitals.</p>
Stramonium	<p><i>Internally administered:</i> Eruption like that produced by belladonna, but less vivid in colour; numbers of small brilliant petechiæ on face (Meigs); erysipelatoid inflammation.</p>
Sulphonal	<p><i>Internally administered:</i> Diffuse scarlatiniform eruption with intense itching; generalised macular erythema.</p>
Sulphur	<p><i>Externally applied:</i> Redness, papules, painful vesicles (often confluent); artificial eczema. Papular and vesicular eruption common in those taking sulphur thermal baths.</p> <p><i>Internally administered:</i> Dark discoloration of skin; eczematous eruption, boils, carbuncles.</p>
Terebene Turpentine	<p><i>Externally applied:</i> Turpentine causes extensive redness, vesicles, and inflammatory lesions. Very persistent and intractable.</p> <p><i>Internally administered:</i> Terebene may cause bright red papular rash. Turpentine may cause erythema of wine-red hue on face and upper part of trunk; profuse papulo-vesicular eruption; sometimes eruption becomes eczematous in character.</p>

Eruptions are occasionally caused by bitter almond, calcium sulphide, capsicum, chinolin, conium, hyoscyamus, ipecacuanha, cod-liver oil, castor oil, phosphorus, santonin, tannin, and veratrum viride; but these are of such rare occurrence that they are of little practical importance.<sup>1</sup>

### INOCULATION RASHES

This seems to be the most appropriate place for a brief description of certain eruptions that follow vaccination and other inoculations performed for a therapeutic purpose. At present our experience of skin eruptions due to this cause—apart from vaccination—is very scanty; but as the current of therapeutical opinion has been setting in the direction of injections of organic liquids (tuberculin, thyroid juice, antitoxic serums of various kinds, testicular and ovarian extracts, etc.), it will probably before long be considerably extended.

**Vaccination eruptions.**—From the etiological standpoint I some years ago suggested<sup>2</sup> the division of vaccination eruptions into two principal groups, as follows:—

1. Eruptions which are due to pure vaccine inoculation.

2. Eruptions which are due to mixed inoculation—that is to say, to vaccine together with an additional virus.

The following classification of vaccination erup-

<sup>1</sup> For full information on drug eruptions the reader is referred to Prince Morrow's work on the subject, edited for the Sydenham Society by Colcott Fox, who has enriched the text with copious notes, which add greatly to the value of the book. A very complete bibliography of the literature of the subject is given at the end.

<sup>2</sup> *Brit. Med. Journ.*, Nov. 29, 1890, p. 1229 *et seq.*

tions under these two headings appears to me to include every kind of eruption traceable to that source :

*Group I.*—Eruptions due to pure vaccine inoculation :

Division A Secondary local inoculation of vaccine.

B Eruptions following within the first three days before the development of vesicles.

Urticaria.

Erythema multiforme.

Vesicular and bullous eruptions.

C Eruptions following after development of vesicles due to absorption of virus.

1. { Roseola—like measles.  
Erythema—like scarlet fever.  
Purpura.

2. Generalised vaccinia. (Plate XIV.)

D Eruptions appearing as sequelæ of vaccination : eczema, psoriasis, urticaria, etc.

*Group II.*—Eruptions due to mixed inoculation :

Division A Introduced at time of vaccination.

Subdivision *a* Producing local skin disease.

Contagious impetigo.

Erythema.

Subdivision *b* Producing constitutional disease.

Syphilis.

Leprosy ?

Tuberculosis ?

B Introduced, not at time of vaccination, but subsequently, through the wound.

1. Erysipelas.

2. Cellulitis.

3. Furunculosis.

4. Gangrene.

5. Pyæmia.

The eruptions belonging to Group I., depending, as they do for the most part, on idiosyncrasy, are practically unavoidable. On the other hand, those in Group II. are preventible by using only pure vaccine lymph with the strictest antiseptic precautions.

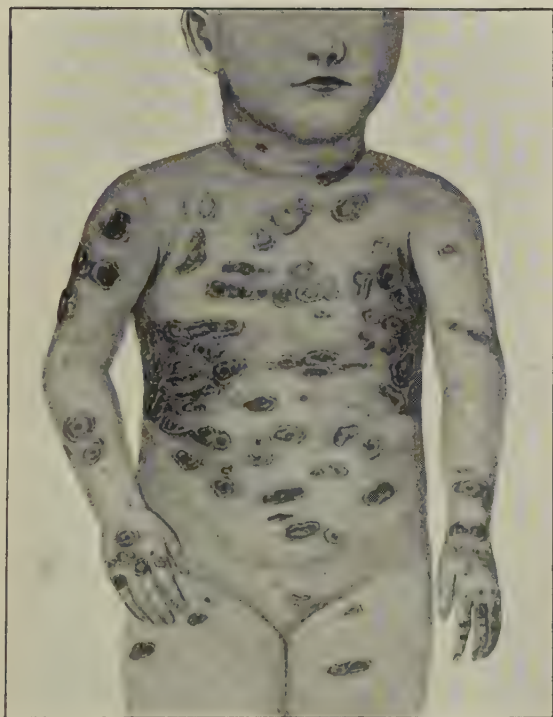


PLATE XIV.—GENERALISED VACCINIA.





The eruptions belonging to Division A of Group II may be local lesions, or manifestations of constitutional disease. To the former category belongs contagious impetigo, which can be inoculated with the vaccine virus, become developed in the vesicles, and spread by auto-inoculation to all parts of the skin. Another local manifestation is a dermatitis or erythema, which starts from the areola and spreads over a limited area, passing imperceptibly into healthy skin. This is often spoken of as true erysipelas, but as it never extends to other parts of the skin, it is in reality only a local dermatitis.

A peculiar "raspberry excrescence" has been described by American writers as sometimes appearing from three to seven days after vaccination. It begins as a red elevation at the site of inoculation; but, instead of advancing to the vesicular stage, it remains hard, dense, bright red in colour, and nodular in form, looking not unlike a small nævus. It is very persistent, is not followed by a scar, and does not confer immunity.<sup>1</sup>

As regards constitutional disease, Hutchinson has proved that syphilis may be transmitted by vaccination; but, judging from the rarity of vaccinal syphilis as compared with the inherited form of the disease, it seems probable that, if pure lymph is used, syphilis cannot be transmitted before the eruptive period. That leprosy may be transmitted by vaccination is inherently probable from the fact that the disease is inoculable. That it *has* actually been so transmitted there is extremely little decisive evidence to show. I know of only two published cases of the kind which will bear examination. Both of these were recorded by Daubler.<sup>2</sup>

<sup>1</sup> Welch and Schamberg, Morrow and others. See Colcott Fox, "The Complications of Vaccination," *Brit. Med. Journ.*, July 5, 1902.

<sup>2</sup> "Ueber Lepa und deren Contagiosität," *Monats. f. prakt. Derm.*, Feb. 1, 1889, p. 123.

I know of no evidence that general tuberculosis has ever been transmitted by vaccination. Dr. Graham Little<sup>1</sup> has reported four cases observed by himself and three by Colcott Fox, which seem to show that the transmission of lupus is at least a possible accident of vaccination. Fox, however, does not think that any conclusion of scientific value can be drawn from these cases. The vaccination sores may, he suggests, have been inoculated secondarily, or a previous tuberculous centre may have existed and an embolus found its way to the scar.

Passing to Division B of Group II., true erysipelas occasionally occurs. It is distinguished from the local dermatitis above referred to by its characteristic margin, swelling and tension of the skin, high fever and general constitutional disturbance, and by the rapidity with which it spreads over the limbs and the body. Cellulitis is extremely rare. Boils are occasionally seen after the eighth day, not only near the pustules, but on other parts of the body. Gangrene has in rare cases attacked the vaccine vesicles, causing extensive sloughing, and in one instance a general vaccinia is said to have become gangrenous (Hutchinson). Pyæmia is extremely rare; it is caused by the introduction of pyogenic organisms into the wound.<sup>2</sup>

Vaccination has also sometimes seemed to be the determining factor in the production of a definite skin disease. I have seen it followed by the development of psoriasis, and I showed at the Dermatological

<sup>1</sup> *Brit. Journ. Derm.*, March, 1901.

<sup>2</sup> For further information on vaccinal eruptions the reader is referred to a paper on the subject read by me at the meeting of the British Medical Association in 1890, and to the discussion which followed it (*Brit. Med. Journ.* Nov. 29, 1890). An excellent account of the vagaries, anomalies, and complications of vaccination is given by Theodore Acland in Allbutt's "System of Medicine."

Society of London a middle-aged man in whom vaccination was apparently the starting point of eruptions having the characters both of psoriasis and of lichen ruber planus.

An eruption which mimics vaccine lesions is described by Colcott Fox<sup>1</sup> under the name *vacciniform ecthyma of infants*. The resemblance to the vaccination eruption is so close that Jacquet has suggested the possibility of the lesions being an accidental localisation of abnormal and deformed vaccine lesions. The age at which the affection develops, the sites of predilection—the neighbourhood of the genital organs and anus—and the morphology have sometimes led to a diagnosis of congenital syphilis. Colcott Fox suggests on both clinical and bacteriological grounds that the affection may be of streptococcic origin. It readily yields to local antiseptic measures.

**Tuberculin eruption.**—The injection of tuberculin sometimes gives rise to a diffuse scarlatiniform or morbilliform eruption. The lesions are generally situated about the hair follicles, but small erythematous patches are sometimes scattered about the trunk. The eruption, as a rule, recurs after each injection. It is in some instances followed by slight desquamation. The new tuberculin (TR) sometimes produces similar rashes.

**Antitoxins.**—Barth reports a case in which injections of tetanus antitoxin (Tizzoni and Cattani) as a remedy for tetanus caused an urticarial eruption which lasted thirty-six hours. Erythematous rashes also frequently follow the injection of diphtheria and streptococcus antitoxins and various therapeutic serums. According to Washbourn,<sup>2</sup> the rashes which occur during the antitoxin treatment of diphtheria are, as a rule,

<sup>1</sup> *Brit. Journ. Derm.*, vol. xix., p. 191, 1907.

<sup>2</sup> *Brit. Journ. Derm.*, 1899, p. 416.

erythematous or urticarial, occasionally scarlatiniform or morbilliform; in very rare cases purpuric hæmorrhages into the skin have been observed. The rash affects the body generally, but especially the extensor surfaces of the limbs. It comes out usually on the eighth day, but it may appear immediately, or as late as the thirty-first day. Rawlings<sup>1</sup> has recorded a case of severe poisoning by antidiphtheria serum, in which the febrile condition was accompanied by a blotchy erythema around the site of infection, which rapidly spread to the trunk. It was markedly circinate in places. There was also a good deal of urticaria, to which the boy had previously been liable. The eruption was accompanied by intense itching, and by severe pains in the limbs, without swelling of joints.

**Treatment of drug eruptions.**—In the majority of cases of drug eruptions the only treatment required is to discontinue the use of the drug that causes the skin lesions; *cessante causâ cessat effectus*. In some cases, however, the artificial eruption may be so severe in itself or may be attended with complications of such a nature that both general and local treatment will be required. The chief indication in most cases after discontinuance of the drug is to stimulate the renal function so as to promote elimination by that channel. *Diuretics* should therefore be freely used, and drugs such as iodide of potassium, the use of which sometimes cannot be interrupted without disadvantage to the patient, should be given copiously diluted with Vichy, soda or barley water, milk, etc. A *saline purge* is also generally useful. Bromide eruptions should be treated with *arsenic*, internally (ʒiij to ʒv of *Fowler's solution thrice daily*), and by the application of lead lotion. If the drug must be persevered with (as in the case of epilepsy), a drop or

<sup>1</sup> *St. Bartholomew's Hosp. Rep.*, Dec., 1898.

two of Fowler's solution added to each dose of the bromide will often prevent the skin affection. Crocker suggests *salol* (*gr. v thrice daily*) as an intestinal anti-septic. The same lines of treatment should be followed in the case of iodide eruptions. The local treatment must be conducted on general principles. Persons whose occupations bring them constantly into contact with irritant substances must be advised to change their trade ; but this, of course, is in many cases out of the question, and the only measure of precaution that can be recommended is scrupulous cleanliness and care to avoid touching any unexposed part of the skin with hands or articles of clothing impregnated with the offending substance. It should be borne in mind that stimulants often appear to increase the tendency to drug eruptions and to aggravate them when already existent. This is particularly the case with chloral.

The **complications of vaccination** must be treated on the general principles applicable to skin eruptions, and by the local remedies suitable to the special lesions produced. The possibility of the inoculation of constitutional disease can now be guarded against with practical certainty by the use of glycerinated vaccine lymph. In regard to other complications, I endorse the following recommendations <sup>1</sup> made by the *Lancet* Special Commission :—

“ We are strongly of opinion that many of the bad results obtained in vaccination are due to the presence of one or other of the following conditions:—Imperfect sterilisation of the skin and want of protection against the invasion of the weakened and abraded tissues by extraneous organisms. We have found that, given a good lymph, the application of a plentiful supply of soap and water, a razor to take off hairs and surface epithelium, ether to remove fatty and sebaceous matter, alcohol to wash away the ether, superficial vaccination (by sterilised instruments), and protection of the vaccinated surface through-

<sup>1</sup> *Lancet*, April 28, 1900, and June 27, 1902.

out the whole course of the local manifestation of vaccinia, most excellent results may be obtained. The best means of protecting the local lesion is the application of several folds of sterile lint containing no chemical disinfectant; that is held in position by strips of adhesive plaster; a layer of boric lint may then be placed outside this dressing, and the whole may be changed as soon as the slightest evidence of moistening by serum appears in the boric lint."



## CHAPTER XII

### ECZEMA

IN no subject within the province of dermatology has the loose use of a term given rise to greater confusion than in the description of the various affections of the skin which have, at one time or another, been grouped together under the head of "**eczema.**" Willan and Bateman restricted the name to a process in which vesicles were an essential lesion. The meaning of the term was afterwards expanded, especially by French observers, so as to include nearly all the skin lesions which were supposed to stand in relation to a constitutional dyscrasia, such as gout, rheumatism, or "herpetism," that pathological phantom which is held accountable for such varied disturbances. On the other hand, Hebra, and after him the Vienna school, went to the opposite extreme, contending that eczema is a purely local disease, which can be excited artificially by the use of external irritants; that, in fact, the process is simply superficial inflammation of the skin dependent on some external cause. Hebra, it is true, admitted that constitutional conditions might predispose to the affection, but so strongly did he maintain the determining cause to be a local irritation, that he included itch in his definition of eczema, on the ground that it is an inflammatory process caused by a local irritant—that is to say, the *Acarus scabiei*.

It is clear, then, that in order to avoid confusion it is necessary in the first place to define the sense in which

the term "eczema" is to be employed, and in the second to adhere strictly to the meaning thus attached to it. In the present work the term "eczema" is used as connoting a *catarrhal inflammation of the skin, originating without visible external irritation, and characterised in some stage of its evolution by serous exudation*. By "catarrhal" all that is here meant is that an essential feature in the process is an exudation of serum, either on the surface of the inflamed skin or into its deeper parts, where the horny layer prevents the fluid from escaping. Although eczema is essentially a catarrhal disorder, and the idea of moisture is an integral part of our conception of the disease, it does not follow that external discharge must always and in all cases be present; all that is implied is that exudation, either on the surface or into the deeper layers of the skin, is, has been, or will be a prominent feature in any given case.

The definition of eczema here given excludes all forms of inflammation of the skin caused by chemical or mechanical irritants. The artificial dermatitis set up by such agents is identical anatomically with the eczematous process, and gives rise to lesions indistinguishable from those of eczema, but it is not eczema. The source of irritation is visible, and can be applied or withdrawn at will; the lesions are distributed over what may be called the area of exposure, and their severity is mostly proportionate to the strength of the irritant or the length of time during which it is applied. Moreover, artificial eczema runs a definite course, and the process is always under the patient's own control—to this extent at least, that he can at any time interrupt the action of the irritant, when, as a rule, the eruption will at once begin to subside. All the phenomena can be reproduced on any part of the cutaneous surface to which the irritant is applied, and although owing to structural differences, the skin of different individuals

varies greatly in vulnerability, and the patient's state of health may have some influence on the severity or duration of the process, the constitution has nothing to do with the development of the disease.

Eczema, on the other hand, arises to all appearance spontaneously—that is to say, not in response to any visible cause of irritation; its distribution has no relation to exposure to the action of external irritants; it is not confined to one particular spot, nor even to one region of the body, but may affect all in succession or simultaneously. Lastly, it does not run a definite course, but may smoulder on for long periods of time, breaking out into active conflagration at irregular intervals without any assignable cause. It may be added that, so far from being under the control of the patient, it too often defies all the efforts of the physician. It is evident, therefore, that there is something more in eczema than inflammation of the skin due to a local and transient cause; there is an unknown quantity beyond this—a pathological *x*, which may be either some invisible source of irritation or some constitutional peculiarity, or a combination of both these factors.

Most recent writers follow Erasmus Wilson<sup>1</sup> in describing a number of different forms of eczema—erythematous, vesicular, papular, pustular, squamous, etc. All these, however, are but different stages of the same process, and there is no advantage in considering them separately, although the terms are sometimes of use in practice to indicate the predominant type of lesion in a given case or at a particular time. Eczema is essentially a polymorphous affection, and there is no particular lesion which can be regarded as distinctive of the disease. Tilbury Fox,<sup>2</sup> following Willan, held that in all cases the initial lesion is a vesicle, though

<sup>1</sup> "Lectures on Dermatology." (London, 1871.)

<sup>2</sup> "Skin Diseases." (London, 1873.)

this may not unfrequently be so small or so evanescent as to escape observation. Colcott Fox adheres to the same opinion. Though the vesicular stage is not a necessary phase in the evolution of eczema, it may be admitted that the vesicle is the most constant of all the primary lesions by which the disease manifests itself.

As no two cases of eczema are exactly alike, and as even in the same case there may be the utmost diversity not only in the lesions but in the symptoms which they produce in different parts and at different times, it is impossible to give a complete clinical picture of the disease in all its varied aspects as met with in practice. All that can be attempted here is an outline sketch, the details of which must be filled in by each practitioner for himself as his knowledge grows by experience. It will add to the clearness of the following description if it be premised that by the terms "acute" and "chronic" the author does not mean to indicate suddenness of onset or slowness of course, but only *greater or less intensity of the inflammatory process at a given time.*

An attack of eczema is generally ushered in by sensations of itching and burning in some parts of the cutaneous surface. Soon the skin at these spots becomes the seat of an erythematous blush, on which numerous tiny vesicles speedily form; the affected part presents the classical signs of inflammation—swelling, heat, redness, and tension—the itching, as a rule, becoming more troublesome as the lesions develop. The vesicles grow larger and often run together, but they soon burst or are broken by the patient's fingers in scratching, and give issue to a clear fluid which stiffens linen. The discharge does not at once dry up, as is the case in other vesicular eruptions, but continues to exude, more fluid being poured out as vesicles of more recent formation in their turn break and add their

contents to the general ooze. In mild cases the inflammation begins to subside in a few days; the redness fades and the "weeping" gradually ceases, scales or crusts being formed, under which the abraded surface heals. As a rule, however, the process continues, fresh crops of vesicles starting up around the edge of the older patches, and new centres of disease being formed as the eruption breaks out in distant parts. In this way eczema may in time spread over nearly the whole body.

Sometimes papules are the predominant lesion, and the affection in such a case may simulate lichen planus. With the help of a lens, however, a minute vesicle can often be seen on the top of each papule. A characteristic appearance in this so-called papular eczema is that, owing to the rupture of the vesicles by scratching, the papules are covered by a tiny dome of blood-crust. The course and symptoms of the affection are as already described, except that the itching is usually more pronounced.

In other cases, again, erythematous lesions may predominate, especially on the face. The affected surface is red but not shiny; it is dry, and sometimes covered with small scales. These appearances may gradually fade away or may linger on, the process being now almost quiescent and again starting suddenly into activity for a time. The epidermis is apt to crack, and serous discharge oozes through the broken integument. This is especially likely to occur on surfaces of skin which rub against each other, forming an eczematous variety of intertrigo.

Eczema varies considerably in intensity at different times. As a rule, the onset is more or less acute, the affection gradually passing into a more chronic stage as it tends to recovery. Both acute and chronic forms may, however, co-exist—that is to say, while the process

is intense at one point it may be quiescent at another, and every intermediate stage may be exhibited in other parts. Sometimes the affection begins in a trivial chronic lesion. Thus a red scaly patch that may have existed on the leg for years may suddenly wake up into activity, causing intense irritation and exhibiting all the phenomena of acute eczema. Again, in cases in which an old-standing eczema has subsided, leaving only a small patch apparently dying out, this may at some subsequent time form a focus for a fresh development of the disease, from which it may spread over nearly the whole body.

The worst forms of eczema are ordinarily accompanied by some constitutional disturbance, not amounting to fever, in the earlier stages; and the same thing occurs at each fresh exacerbation of the process. The general health, however, is seldom appreciably affected, except when the itching is so intense as to make sleep impossible; but the attacks seldom follow each other so closely as to leave no intervals during which the patient can make up arrears of rest. So slight is the effect of eczema on the system that in the most intense form of the generalised disease, when the discharge is so profuse as to glue the hair to the pillow and the linen to the body, and when the itching is maddening and almost continuous, fresh outbreaks occurring every few hours, there may be no rise of temperature, the tongue may be quite clean, and every function in perfect working order; in short, with the exception of nervous excitement, there may be absolutely no disorder of the general health. The itching and heat are often out of all proportion to the visible changes in the skin, and these symptoms are usually intensified to an extreme degree at night, especially in the smaller hours. I have often seen strong men literally reduced to tears by the irritation and discomfort which they experienced when



there was nothing particular to see in the skin. Even persons of the strongest will are unable to control themselves, and scratch as if by tearing their skin they could root out the cause of the irritation. They will tell you that they feel a kind of savage satisfaction in tearing their skin till the blood comes, and, as a matter of fact, the pain of the severe excoriation caused by their nails seems for a time to subdue the intolerable itching. A state of mental calm follows the nerve storm caused by the irritation, and the patient is able to sleep. In severe cases mental excitement is often very pronounced, especially in persons of neurotic temperament.

In the great majority of cases of eczema the following stages are more or less directly recognisable :—(1) An initial *erythema*, the affected surface presenting the usual signs of inflammation, and generally soon becoming studded with vesicles ; (2) *exudation* of a clear serous fluid, which stiffens linen, the surface being red and “weeping,” and often excoriated by scratching ; (3) *crustation*, the discharge “setting” into greyish-yellow crusts of varying thickness, which, as they become detached, are succeeded by others as long as the oozing continues ; (4) a *dry stage*, during which no further formation of crusts takes place, and the surface is covered with a thin, red, glistening epidermis, dotted with small points of a deeper red tint ; (5) lastly, *desquamation*, the new epidermis being shed in scales, which gradually become smaller and thinner till nothing remains to mark the site of the lesions but a brownish stain. All these stages are usually present at once in a given case, and this, combined with the modifications of the lesions in different circumstances about to be described, together with the accidental complications produced by scratching, and by inoculation of micrococci (pustules, boils), gives eczema the multiformity of aspect which has been mentioned as one of its most



striking characteristics. The process always begins with more or less violent inflammation—in other words, there is in all cases an “acute” initial stage, though sometimes this is so brief in duration that the disease might easily be thought to have been of the “chronic” type from the first. It may run through all the various phases that have been described, or it may abort at any stage, without in either case leaving permanent changes in the part attacked. On the other hand, it may be indefinitely prolonged, though in an almost dormant state, leading to thickening and other results of slow, persistent inflammation. Even in the oldest of such patches, however, the disease may start into activity at any time and without any visible provocation. Eczema may, in fact, as regards the vicissitudes and the varying degrees of intensity of the process, be compared with inflammation of a joint. First there is the period of onset, the heat, pain, and tension in the joint having their analogues in the heat, swelling, and itching of the skin; next comes effusion into the joint, corresponding to the “weeping” stage of eczema; lastly, absorption of fluid in the one case and drying up of the discharge in the other, followed by more or less complete restoration of the *status quo ante*. Again, there is in the joint, as in the skin, the liability to sudden exacerbation of the inflammatory process even after long quiescence, and the tendency to structural changes after long persistence or frequently repeated attacks.

The eczematoid lesions which precede, usually for a long time, the onset of mycosis fungoides are really the prodromal eruption of that affection.

#### MODIFYING INFLUENCES

While the eczematous process is always essentially the same, its manifestations in individual cases are more or less modified by special conditions of structure

or situation in the affected parts of the skin and the age and sex of the patient. These various factors will be considered separately.

**Distribution and regional peculiarities.**—There is no part of the skin which may not be attacked by eczema, but there are certain regions for which it exhibits a more or less marked predilection, and in which it usually begins. These are the flexor surfaces of joints—the bends of the elbows, the backs of the knees, and the groins; other favourite situations are the groove behind the ears, the scalp, the palms, and the soles, the breasts in women, the lumbar region, and the back at the level of the lower angles of the scapulæ. On the limbs eczema sometimes gives rise to considerable infiltration and induration; hence deep, painful cracks are apt to be formed on the flexor surfaces when the inflamed skin is subject to frequent movements. The eruption is generally symmetrical.

On the fronts of the *legs and arms*, and occasionally on the flexor surfaces of joints, the disease assumes a peculiar form, which, from the uniform redness of the part attacked, has been dignified with a special name—*eczema rubrum*. The affected area is of a bright red colour and glistens with moisture, beads of exuded fluid standing on the surface like dewdrops—hence the term “*madidans*,” sometimes used to denote this form of eczema. The discharge quickly dries, forming extremely thin scabs like flaky piecrust or goldbeater’s skin; these, when torn off, reveal a wet, raw, tender surface beneath. Sometimes, especially in parts where the skin is more or less tightly stretched, as on the front of the leg and the forearm, the exudation cannot force its way to the surface, and the skin is dry, but very tense and red. When the inflammation is of a slight degree of intensity the patches are often covered with scurf, which is easily detached, exposing a dull red surface which is

not raw nor tender. As a rule, no constitutional disturbance accompanies eczema rubrum, unless a very large area of skin be involved, when the condition approximates to pityriasis rubra.

On the *scalp* eczema is generally of the seborrhœic form. Another form is, however, met with which seems to be unconnected with seborrhœa. The scalp is red and covered with crusts, but the hair does not fall out. In children, and also in adults, the affection is sometimes associated with pediculi, and in such cases pustules are almost sure to be produced by inoculation with the patient's finger-nails.

About the *nostrils* eczema is often accompanied by coryza of an irritating character, complicated at times by painful boils. The disease may attack the nasal fossæ, where it may cause considerable œdema. Eczema in that situation sometimes leads to catarrh of the nasopharynx and so to catarrh of the middle ear (Gruber). The *upper lip* may suffer in consequence of the nasal discharge trickling over it. The special features are great swelling and redness of the part of the lip lying below the nostrils, with painful papules about the orifices of the hair follicles, and almost unbearable itching; crusts form, and a good deal of thickening of the lip, causing deformity and even obstruction of the nostrils, may be left. A particularly painful form of eczema may attack both upper and lower lips, which swell and discharge, and sometimes become so stiffened under a carapace of crusts that the patient can hardly move his lips without cracking the integument. A less severe form of eczematoid eruption of the lip region begins on the vermilion of the lips as a mild irritation, with scanty exfoliation, and occasionally with slight crusting without any "weeping." In some cases it extends to the skin proper; and the mucous membrane also, and even the tongue, may be involved. It is not, according to

Stelwagon,<sup>1</sup> a frank eczema, but is possibly a phase of eczema seborrhœicum.

The *ear* is a favourite point of attack for eczema, which often lingers there when it has disappeared from other parts, and invades neighbouring regions from it as from a centre, when kindled into fresh activity. Sometimes the whole external ear is involved, the disease occasionally even spreading along the meatus to the membrana tympani; in other cases the lesions are confined to the groove behind the ear.

On the *face* eczema is usually of the seborrhœic form, and is, as a rule, the result of the extension of the process from the scalp.

Eczema of the *chin* is often confounded with sycosis, from which, however, it is to be distinguished by the absence of indurated nodules and cicatricial alopecia (Brocq).

On the *wrists* the dorsal surface is the usual seat of the disease, the irritation being kept up by the chafing of the cuffs. On the *feet* the spaces between the toes most frequently suffer. On the palms and soles the most common effect of eczema is great thickening of the epidermis, which impairs the flexibility of the parts and leads to the formation of cracks (*eczema rimosum*), making the use of the feet and hands so difficult and painful as to disable the patient for active life. The *nails* are discoloured and undergo degenerative changes. The first sign of the affection is usually pitting, which gives them an appearance somewhat resembling the rind of an orange. They become thin, split transversely and longitudinally, and exfoliate; in old-standing cases they sometimes become thickened to the extent of deformity.

Eczema may attack the *nipple*, especially in nursing mothers; but this part may also be the seat of the

<sup>1</sup> *Journ. Cut. Dis., including Syph.*, Aug., 1904.

affection in unmarried women, and even in men. It begins in seborrhœa of the nipple and the areola, and presents the ordinary characters of seborrhœic eczema. Cracked nipple is a frequent result. The affection is generally symmetrical. It is not to be regarded as the first stage of Paget's disease; it is innocent in character, though often extremely obstinate.

On the *genitals* eczema is chiefly of the erythematous form, and it is naturally worst where two surfaces of skin rub against each other. The irritation is excessive, and the temptation to scratch more difficult to withstand than in almost any other situation. The scrotum and penis sometimes become greatly swollen, and the disease may spread over the perineum, round the anus, into the fold between the nates, and over the gluteal region; not unfrequently it invades the whole of what may be termed the "bathing-drawers area." In such cases the patient cannot sit down or walk without the crusts and the inflamed skin beneath them giving way somewhere. In the female the state of things is even worse. The process is generally stirred up to a violent degree of intensity by the chafing of the parts; the swelling may be enormous, and almost every variety of lesion that can be produced by acute inflammation aggravated by scratching and urine—foul crusts and scabs, fissures, and disgustingly offensive discharge—may be present, while walking is so painful as to be almost impossible, and the itching is so distressing that life becomes a burden.

Eczema of the *anus* is often associated with piles or worms; the skin is thickened, and painful fissures are frequently present. The itching is in most cases intense, and the harassing character of the affection gives an anxious and haggard expression to the sufferer's countenance.

The *umbilicus* is sometimes the seat of an obstinate eczema, usually seborrhœic in form. The lesions are circular in outline, and do not, as a rule, extend far beyond the edges of the umbilicus.

**Sex.**—Although eczema spares neither sex, males are perhaps, on the whole, more liable to be attacked than females. In childhood, Crocker's statistics show a preponderance of boys to girls of five to three.<sup>1</sup> In middle age, when the burden of life is heaviest, the greater proclivity of the male sex is still more marked. Bulkley<sup>2</sup> gives an analysis of 5,000 cases of eczema under his own observation, which shows that in the period from thirty to fifty years of age the number of male patients in his private practice was about double that of female. Hebra's estimate that the proportion of females to males among the subjects of eczema in his clinic was as two to one is probably to be explained by the greater opportunities women have of attending as out-patients at a hospital. There are, however, two periods of life at which women are more liable to eczema than men, namely, between the ages of ten and twenty, when menstruation is becoming established, and again at the menopause.<sup>3</sup> In old age the influence of sex appears to be lost in the degenerative tendencies common to both.

**Age.**—In *children* eczema is mostly of the seborrhœic form, and in a large proportion of cases it begins in the earliest years of life. As a rule, the starting-point is the head or face. The focus from which the disease starts is generally a patch of dried sebaceous matter. Such a patch, dirty brown in colour and consisting of

<sup>1</sup> "Diseases of the Skin," 3rd edition, p. 157.

<sup>2</sup> "On the Relation of Eczema to Disturbances of the Nervous System." Reprinted from the *Medical News*, January 31 and February 7, 1891.

<sup>3</sup> Bohn: *Deutsch. Arch. f. klin. Med.*, October, 1886.



greasy material, is often seen soon after birth. From the head or face the disease spreads downwards, generally in the middle line of the body (front and back), but not sparing the limbs. Vesicles show a much greater tendency to become pustular than in adults, forming on the head moist yellowish crusts which glue the hair together, while from underneath them frequently wells up a sickly-smelling sero-purulent discharge. On the face the crusts often have a dark-green or brownish tint, and cover the face, leaving the mouth, eyes, and nose free, like a mask with an opening cut in the centre (Unna). On the trunk, where the exudation is usually less abundant, thin scales are more common than crusts.

Itching is sometimes very troublesome, especially where cleanliness is neglected and the lesions caused by the disease are aggravated by pediculi. The lymphatic glands are frequently enlarged, and subcutaneous abscesses, particularly in the sub-occipital region, are a not uncommon complication. In babies at the breast the natural folds and creases of the skin—nates, thighs, neck, etc.—are often the seat of eczematous lesions which are frequently overlooked, mothers and nurses not separating the parts properly for fear of making the child cry. Kaposi<sup>1</sup> says that in these cases the dermatitis sometimes assumes a very intense character, rapidly becoming gangrenous or diphtheritic, a cure taking place in the most favourable cases with loss of substance and cicatrices, or death ensuing in a few days from convulsions and collapse. I can only say that no case of this kind has ever come under my observation.

According to Brocq,<sup>2</sup> the rapid disappearance of an eczematous eruption in a young child may be fol-

<sup>1</sup> "Maladies de la Peau," t. i., p. 658. French translation. (Paris, 1891.)

<sup>2</sup> "Traitement des Maladies de la Peau," p. 169. (Paris, 1890.)



lowed by pulmonary congestions of the most dangerous kind.

Unna<sup>1</sup> recognises three absolutely distinct types of eczema of the face in infants—nervous, tuberculous, and seborrhœic. The first occurs during dentition. It is symmetrical in distribution, and usually affects the middle of the cheeks, then the forehead, and almost at the same time the radial side of the backs of both hands and wrists. The itching is intense, and the healthier the child is the worse the symptom seems to be. On the appearance of a few teeth the eczema dies away, probably to come out again a few days later. The tuberculous form is localised in the neighbourhood of the eyes, nose, mouth, or ears, and is often associated with scrofulous rhinitis and otorrhœa, and swelling of lymphatic glands. There is little or no itching. I am disposed to regard this as a form of impetigo contagiosa rather than eczema. The seborrhœic form is described at page 268.

At *puberty* eczema may occur in the seborrhœic form just referred to. Beginning on the scalp, it may spread to the face and other parts, apparently by local infection. It also occurs in connection with the peculiar dryness of the skin known as xerodermia. In early life this condition is scarcely noticeable, but towards puberty the skin becomes dry and harsh, and on it eczema may develop. Another form of eczema which appears at puberty alternates with neurotic conditions, more especially with asthma and commencing osteoarthritis.

In *middle life* eczema presents little peculiarity either in the nature of the lesions or in their distribution. "Weeping" and scaly forms are, however, far more common than the pustular lesions that predominate in infantile eczema. It is at the middle

<sup>1</sup> *Journ. Cut. and Gen.-Urin. Dis.*, Dec., 1887.

term of life, moreover, that the influence of constitutional conditions, such as gout or rheumatism, is most likely to make itself felt. These conditions do this not so much by exercising any direct effect on the eczematous process as by modifying the general health in a way favourable to the continuance of the skin affection. The affection often comes on very acutely after a chill. According to Brocq, it is especially in middle life that alternations between eczematous lesions on the skin and "visceral manifestations" of greater or less gravity (pulmonary, renal, intestinal, cardiac, cerebral, etc.) are most likely to show themselves.<sup>1</sup> When all the lesions have disappeared, there often remains an intensely irritable state of the whole cutaneous surface. The patient lives in constant dread of a new attack, and this, combined with the itching, may bring him to the verge of insanity. In women at the change of life eczema shows a marked tendency to relapse in particular regions. According to Jamieson,<sup>2</sup> more than three-fourths of the cases occur on the scalp and ears. The extremities may also suffer to some extent, but the trunk generally escapes.

*Elderly persons* are particularly apt to suffer from a form of eczema which is really an expression of enfeebled vitality or the result of degenerative changes in the skin. The disease is generally chronic in character, with short acute exacerbations. The irritation is often very great, making sleep impossible. The favourite situation of the disease in such cases is the lower part of the leg, where it is frequently associated with varicose veins and ulcers. The irritation of the skin may, as pointed out by Kaposi, set up reflex irritation in the intestine, preventing the proper digestion of food. The irregularity of the bowels reacts in turn

<sup>1</sup> *Op. cit.*, 2nd edition, p. 119.

<sup>2</sup> *Op. cit.*, p. 169.

on the skin, and thus a vicious circle is established. The patients are reduced to so miserable a condition that they are sometimes driven to end their sufferings by suicide. In milder forms the skin is only slightly roughened and red, the surface being covered with a thin film of scales; in severe cases there is often great thickening of the skin, accompanied by distressing itching. When the skin is very dry and atrophic, as it usually is in persons of advanced age, it is apt to crack along the lines of cleavage, causing great pain on movement. In old men eczema not unfrequently spreads from an old, almost forgotten patch, commonly on the leg, involving wide areas and developing fresh centres in distant parts, till nearly the whole surface of the body may be invaded. The erythematous form already mentioned, which attacks the face and neck, is common in elderly people.

#### SPECIAL FORMS OF ECZEMA

The general phenomena of the eczematous process having been described, certain variations in the clinical aspect and course of the affection, dependent on differences in its mode of origin, remain to be considered. By the terms of the definition of eczema given at the beginning of this chapter, all forms of inflammation of the skin due to definite chemical or mechanical irritation are excluded. But even in the restricted sense in which it is here used, eczema is still rather a pathological formula expressing the results of several forms of morbid action than a distinct disease.

The nature of eczema is one of the vexed questions of dermatology, and a full discussion of the question would be out of place in an elementary text-book. Such a discussion is the less necessary since for all practical purposes it is sufficient to recognise two kinds of eczema, or, to speak more precisely, two great groups

of eczematous eruptions—those which come out on previously healthy skin, and those for which the way has been prepared by some pre-existing local disorder of the secreting apparatus of the skin.

Of the latter category there are three special forms, according as the source of the mischief is in the sebaceous glands (seborrhœa), the sweat glands (hyperidrosis, anidrosis), or the hair follicles (folliculitis).

**Seborrhœic eczema**, for our knowledge of which we are indebted to Unna,<sup>1</sup> begins, as a rule, in seborrhœa of the scalp, which in some cases has existed since birth; in rare instances the starting-point may be the margin of the eyelid, or a part like the axilla, the bend of the elbow, or the cruro-scrotal fold, where sweat glands are abundant. In connection with this point it should be noted that, according to Unna, what is usually called “seborrhœa” is often a fatty hypersecretion poured out not from the sebaceous but from the sudoriparous glands, and should be regarded as *hydrosis oleosa*. The affection begins as a latent catarrh; it first manifests itself by the agglutination of epidermic scales, which are thrown off in large lamellæ. That there is a faulty distribution of the fat in the skin is shown by the fact that the hair becomes abnormally dry from closing up of the hair follicles, while the epidermis and exfoliating scales are abnormally fatty. The scales may simply increase in quantity, or they may become massed into fatty crusts between the hairs, which are thus crushed out, leaving a bald patch on the top of the head (*corona seborrhœica*). In other cases the catarrhal phenomena are more pronounced; the skin is red and swollen and “weeps” profusely; the

<sup>1</sup> *Journ. Cut. and Gen.-Urin. Diseases*, Dec., 1887, p. 449 et seq. The paper was a communication to the Dermatological Section of the Ninth International Medical Congress, held at Washington.

fatty scales either are not formed or are washed away by the discharge ; the rete may be laid bare. Unna calls these respectively the *scaly*, the *crusty*, and the *moist* forms of what is generally termed "chronic eczema of the head." The sternal region may also be the seat of a primary seborrhœic eczema, which is almost always of the "crusty" form ; the patches are usually made up of segments of circles, and present different shadings of colour, from yellow in the centre to bright red (after removal of the scales) at the outer edge.

Eczema seborrhœicum spreads slowly in a peripheral direction ; a patch may remain almost stationary for years. Beginning, as already said, on the head, it extends over the scalp, thence to the ears, the forehead and cheek, the neck, and down the front of the chest and the back, especially in the inter-scapular furrow, into the axillæ and the bends of the elbows and on the hands, into the groin and the cruro-scrotal fold, over the genitals, behind the knees, and between the toes.

Seborrhœic eczema is nothing more than the eczematous process going through the various phases of its evolution in a skin that has long been the seat of seborrhœa. The latter prepares the ground for the eczema. The discharge itself may possibly have an irritant action on the skin, but the real irritant—the efficient cause of the lesions—is, there is every reason to believe, of infective nature. This affords an explanation of the suppurative processes which often complicate seborrhœic eczema. Much discussion has taken place regarding the micro-organisms, especially the "bottle bacillus" of Unna and the microbacillus of Sabouraud, which are associated with this form of eczema. The question is still undecided whether these organisms are simply saprophytic, and occur accidentally on the skin, or actually pathogenic. Sabouraud holds that the *Staphylococcus epidermidis albus* is at least a

contributory, if not a causal factor in the production of seborrhœic eczema.

**Sweat eczema.**—Excessive secretion of sweat, without any alteration in the character of that fluid, may also prepare the way for eczema by so modifying the condition of the skin as to make it prone to become the seat of the eczematous process as already defined. The most common situations for the development of this form of eczema are the parts where two opposed surfaces of skin rub against each other—between the nates, between the scrotum and the thigh, in the axilla, between the toes, in the deep folds under an overhanging breast, and in the hypogastric region under a prominent abdomen. The sweat in such parts is apt to undergo decomposition, and this fluid, mixed with shreds of macerated epithelium and “fluff” from the underclothing, forms a substance highly irritating to the skin. It must be understood, however, that hyperidrosis *plus* friction can only produce a dermatitis similar to that caused by other chemical and mechanical irritants; for the production of eczema—*i.e.* of a train of lesions which may persist after removal of the conditions that engendered them, and which may be followed by the development of similar lesions in other parts that have not been exposed to the same irritation—a *tertium quid* is required. This factor, which dermatologists of the older school assumed to be gout or some equally convenient dyscrasia, will in all probability be shown to be the action of micro-organisms. Sweat eczema is almost always, in the first instance at least, an intertrigo, but is distinguishable from the erythematous form of that affection by the “weeping” of the opposed surfaces and the resulting crusts. It is not necessary, however, for the development of the eruption that there should be chafing; the eczema which is one of the signs of the “crisis” of the cold-



water cure, is due to the profuse sweating that is the principal effect of that method of treatment.

**Eczema folliculorum**, which was first described as a special form of the disease by the author, begins in inflammation of the hair follicles. Each inflamed follicle stands out on the skin as an angry-looking red papule; the capillaries around are congested, and soon the skin is involved in the process. In this way red patches dotted with inflamed follicles are formed, which tend to spread by the extension of the inflammation from follicle to follicle. As a patch spreads at the edge it usually undergoes resolution in the centre, desquamation takes place, and the redness fades into a yellowish stain. The itching is often most intense. The patches are generally multiple and are scattered about the body, especially on the extensor surfaces of the arms and legs. The predilection of eczema folliculorum for the extensor surfaces of the limbs is a distinctive feature as regards distribution, other forms of eczema showing a preference for the flexures of joints. The affection is obstinate, and recurrence is almost the rule. It is closely allied to sycosis, and there can be little doubt that it is of microbic origin.

**"Nervous eczema."**—Apart from the special forms of eczema that have been described, there is a large class of cases in which the disease springs up *de novo* in skin that has not been the seat of seborrhœa or other preparatory process. This class, in the absence of any definite objective characteristic, I propose to designate "nervous eczema," though, as will be explained farther on, I include under that term many eczemas in which the nervous system is not the only, or the chief, etiological factor in operation. That eczema may be of purely nervous origin appears to be admitted by Unna himself, inasmuch as he expressly states that one of his three types of infantile eczema is caused by



reflex irritation during dentition, and disappears when the tooth has cut its way through the gum. Elliot<sup>1</sup> has applied the name of "reflex neurotic eczema" to what he considers to be a definite type of the disease which he has seen in babies and young children. Barham<sup>2</sup> has described a "neurotic eczema" presenting objective features sufficient to distinguish it from other forms of the disease. These are: (1) Grouping of the lesions in circumscribed patches sharply separated from adjoining lesions; (2) symmetry of the eruption as a whole; (3) preference for the extensor surfaces of the extremities; (4) absence of peripheral spreading or contraction of the separate patches. My own experience leads me to the conclusion that when eczema arises in apparently normal skin it is always nervous in origin, though the parasitic element often comes into play as a secondary factor. I cannot say, however, that I have observed any peculiarities of appearance or distribution whereby a purely neurotic eczema could be distinguished from other forms of the disease.

**Symptoms of eczema.**—The objective phenomena of eczema have been described in the preceding pages, and incidental mention has been made of the subjective symptoms characterising the different forms of the disease. It may not be amiss, however, to pass the latter rapidly in review for purposes of comparison. The only ones that need concern us here are itching and pain. These symptoms, particularly the former, vary greatly in intensity according to the temperament of the patient or the structure and condition of his skin. The lesions which in a person of "lymphatic" temperament cause only slight annoyance, may in a neurotic or gouty subject give rise to nerve storms of such intensity as to banish him from society and almost wreck

<sup>1</sup> *Internat. Med. Magazine*, Oct., 1892.

<sup>2</sup> *Mcd. Record*, July 9, 1892, and *Med. News*, March 25, 1893.

his reason. Nor is the intensity of the itching proportionate to the severity and extent of the lesions; it is often worse when there is little or nothing to see, *e.g.* in the erythematous eczema of the scalp common in old people. In such cases the exudation imprisoned beneath the horny layer probably presses on or irritates the terminal filaments of the sensory nerves of the skin, and the relief given by free scarification of the parts with the finger-nails seems to give some confirmation of this view. It not unfrequently happens that, owing to disturbance of innervation, itching persists long after every trace of lesion has disappeared. How profound an impression eczema may leave on the nervous apparatus of the skin is shown by the fact that in some cases in which the disease has lasted a long time the skin appears to be so much under its dominion that the slightest accidental irritation is sufficient to bring on an attack. Pain is not often severe, except when inflammation runs high and causes great heat and tension of the skin; the pain generally subsides as soon as the effusion finds its way to the surface. In the neighbourhood of parts, as the mouth, genitals, anus, etc., which cannot be kept at rest, the skin becomes thickened and tender, and the cracks caused by movement are so painful as to interfere with the performance of natural functions. The only other subjective symptoms caused by eczema are an exaggerated sensitiveness to cold and a feeling of lassitude or disinclination for work (Jamieson).

**Complications.**—*Locally*, the eczematous process is often complicated by inflammation of the related lymphatic vessels and glands. As the result of scratching, micrococci may be inoculated, and when these penetrate from the superficial to the deeper layers of the skin they cause the development of painful boils. Of *internal* complications, the most common is dyspepsia:

Gout is also a frequent concomitant. Both these conditions have been supposed to stand in a causal relation to eczema, but to me they appear to be nothing more than accidental complications. The case is somewhat different as regards asthma. That affection is so often associated with eczema that, when a patient suffering from certain types of the latter affection comes before me, I am in the habit of asking if he is subject to asthma. It will be seen later that I regard these two affections as frequently dependent on a common cause.

**Diagnosis.**—In a certain proportion of cases of eczema the diagnosis presents no difficulty, the appearance of the lesions, and particularly the “weeping,” being sufficient for the identification of the disease. Sometimes, however, the nature of the affection may be obscured by the very multiformity which is one of its characteristic features. In such cases one must have recourse to a process of exclusion. No reliance must be placed on subjective symptoms, as they are so variable that they can serve only as an index of the patient’s temperament and of what may be called the temperament of his skin. All discharge, crusts, or accumulations of scales should first be removed, and a careful examination should be made of every affected spot. However multiform the lesions may be, one seldom fails, if an adequate search be made, to discover somewhere or other a patch which can be recognised as eczematous. This at once dissipates any doubt as to the nature of the disease. Secondary syphilis and erythema multiforme are the two conditions which, in the multiformity of their lesions, most resemble eczema. If the lesions are syphilitic there will be other signs of the disease, while erythema multiforme can be identified either by the presence of some typical lesion, such as so-called herpes or erythema iris, or by the pre-

ponderance of red raised patches without scales, and especially without any trace of "weeping." Erysipelas can be excluded by the absence of constitutional symptoms and of the characteristic brawny induration and ridged border.

Of parasitic diseases, the one which most closely resembles eczema is scabies; the lesions are so similar that, when the characteristic burrows are not visible nor the itch-mite discoverable, a mistake might easily be made. The lesions of itch are, however, isolated, not grouped into patches; further, they lack the spreading edge characteristic of eczema. There are, moreover, differences in the distribution of the two affections—scabies being scattered irregularly and showing a marked predilection for the hands, especially in the interdigital spaces, the wrists, the inner side of the thigh, the abdomen, the pubes, and the axilla; while eczema is nearly always more or less symmetrical, and mostly affects the head, the trunk, and the flexures of joints. Sycosis of the chin sometimes simulates eczema of that region so closely that it is almost impossible to distinguish the one from the other, except by the fact that sycosis shows no tendency to spread beyond the area covered by hair. Ringworm of the scalp can be identified by the broken hairs which can always be found on careful search. *Tinea circinata*, if it occurs as a scaly patch on the trunk, can be recognised with the help of the microscope. *Favus* of the scalp is distinguishable by its cup-shaped crusts and its mousy smell. From herpes in general eczema is distinguished by the characteristic "weeping," and from zoster in particular by the distribution, which does not follow any particular nerve area. *Impetigo contagiosa* may sometimes be mistaken for pustular eczema; in such cases search must be made for definitely eczematous lesions in other parts. It is to be noted also that

in impetigo contagiosa there is little or no inflammatory areola around the crusts. Eczema papulatum often resembles lichen ruber planus; in the latter affection, however, the papules are irregular in outline, and neither discharge nor crust formation is ever observed. Certain forms of dry seborrhœic eczema are very difficult to distinguish from psoriasis. Attention to the following points of difference will help the practitioner to come to a correct conclusion. In the first place, psoriasis is always dry; moreover, it has a typical distribution, and spreads from the elbows and knees. Eczema, on the other hand, in the majority of cases, spreads downwards from the head. Further, patches of psoriasis have a sharply defined border, and are not so stationary as those of eczema. In the former the scales are silver-white, in the latter yellowish, with a distinctive fatty and crumbling character which is absent in psoriasis. Lastly, in psoriasis there is no history of previous seborrhœa. The point of diagnosis from a dry seborrhœic dermatitis so frequently emphasised—namely, that on removing the scales of psoriasis, the red or even bleeding tips of congested papillæ may be noticed—is of some value, but may be quite misleading.

Eczema of the nipple may be distinguished from Paget's disease by the absence of the parchment-like induration and retraction of the nipple, which are characteristic features of the latter condition.

**Etiology.**—The causation of eczema has not yet been definitively established by scientific evidence, but it is clear that for its production two conditions at least are necessary. These are: first, a predisposition or special irritability of the skin; secondly, an exciting influence which brings this irritability into action. The abnormal vulnerability of the skin may depend on certain peculiarities of structure, or it may be the result of a

pre-existing morbid condition; or, again, it may be connected with some underlying constitutional state. The exciting influences may act on the skin directly by setting up irritation and so causing the development of the lesions, or indirectly through the nervous system. In many cases both these modes of attack are combined. Lastly, the eczematous process, when set in motion by the causes that have been referred to, may be intensified and kept up indefinitely by secondary causes, such as the patient's state of health, his exposure to sources of additional irritation, etc.

As regards peculiarity of tissue, fair-haired persons appear to be somewhat more liable to eczema than those of darker complexion (Jamieson). A thin, dry, anæmic skin, with deficiency of subcutaneous fat, affords a very favourable soil for the development of the process. The disease is not unfrequently associated with xerodermia, a congenital anomaly characterised by abnormal dryness of the epidermis—in fact, a mild form of ichthyosis. Such anomalies are often inherited, and the tendency to eczema may be transmitted with them; in this sense only is eczema hereditary. On the other hand, skins in which the sudoriparous glands are over-active are especially liable to “sweat eczema.” But the condition of all others which makes the skin most vulnerable to attack is seborrhœa. I do not go to the length of saying with Unna, “Treat the seborrhœa of children, and you will not later have eczema in adults,”<sup>1</sup> but I am convinced that if there were no seborrhœa there would be much less eczema.

In the same way the ground may be prepared for eczema by artificial dermatitis. As has already been explained, I do not look upon the eruptions caused by chemical or mechanical irritants as coming within the

<sup>1</sup> Congrès Intern. de Derm. et de Syph., tenu à Paris en 1889; *Comptes-Rendus*, Paris, 1890, p. 544.



category of eczema; undoubtedly, however, such lesions may be the starting-points of the disease. Thus it is by no means uncommon to see artificial dermatitis on a bricklayer's hands followed by the development of patches of true eczema on parts of the skin that have never been in contact with lime; and the eczema may persist and reproduce itself in different spots when the *eczematoid* lesions in which it took origin have disappeared. It is clear, therefore, that in such cases some other agency besides the original cause of irritation has come into play; to the lime there has been superadded an irritant of a different kind, the action of which is not temporary and localised, but continuous and self-multiplying. There can be little doubt that this additional irritant, which transforms a simple seborrhœa or dermatitis into an eczema, is the action of micro-organisms. As has already been pointed out, the skin has an abundant and varied microbic flora of its own; under normal conditions these organisms do no harm, but it is easy to understand how the lesions produced by previous disease may make the integument more vulnerable to their attacks.

Unna<sup>1</sup> formerly taught that in acute eczema the fluid in the vesicles contains a specific micro-organism, which, from its tendency to form mulberry-like masses, he called "morococcus." By inoculation of cultures of this parasite he believed that he had produced eczema. He stated that he found the same micro-organism in the scales in chronic cases. Seborrhœic eczema is believed by Leredde<sup>2</sup> to be the result of a mixed infection due to the association of microbes, such as that of fatty seborrhœa, pityriasis capitis, etc., with Unna's morococcus.

<sup>1</sup> See Unna: "On the Nature and Treatment of Eczema," *Brit. Journ. of Derm.*, 1890, p. 231 *et seq.*; and Leredde: "L'Eczéma, maladie parasitaire," Paris, 1898.

<sup>2</sup> *Op. cit.*, p. 6.



As a result of re-investigation of the question, however, Unna has made a public recantation of the "morcoccus" doctrine.<sup>1</sup> At the fourth International Congress, held in Paris in 1900, he summed up the conclusions to which he had been led by his more recent researches in the following propositions: 1. The uncertainty which exists concerning the pathogenic agent of eczema is due in great measure to the absence of precise knowledge as to the various forms of cocci, micro-organisms presenting the closest similarity in appearance, possessing widely different pathogenic properties. 2. In eczema numerous micro-organisms are present, and among them are several which, when reinoculated, reproduce the disease, which is therefore contagious and in certain circumstances may become epidemic.

Drs. James Galloway and J. Y. H. Eyre, in a communication presented to the same Congress, reported the results of bacteriological examinations made by them in several cases of acute papulo-vesicular eczema. In early and uncomplicated lesions they found cocci producing whitish cultures, all of them examples of the type *Staphylococcus pyogenes albus*, and possessing to a greater or less extent the pathogenic powers of that organism. They expressed the opinion that in all probability there are many factors at work in the production of any attack of eczema, and, although they do not think this organism is the cause of the disease, they cannot help considering that this white coccus, and other cocci, such as the *Staphylococcus pyogenes aureus* and the *Streptococcus pyogenes*, which are so often present, especially in the later stages of the disease, must have very important influences on the development of the malady. The local infectivity and chronicity of eczema, the ease with which purulent manifestations occur, should be, in all probability, ascribed to the presence

<sup>1</sup> *Monatsh. f. prakt., Derm.*, Bd. xxi., No. 5.

of such bacteria. Sabouraud, in a communication to the annual meeting of the British Medical Association, held at Cheltenham in 1901, expressed the opinion that the staphylococcus is the cause of pustular lesions of the skin in eczema and other conditions. Neisser has summed up his belief in the formula, "No eczema without micrococci." Bender, Bockhart, and Gerlach,<sup>1</sup> from an elaborate series of inoculation experiments performed upon themselves, preceded by artificially produced irritation of the skin with injury to the epithelium, conclude (1) that while inoculation of virulent cultures of *Staphylococcus pyogenes aureus* and *albus* in agar on the irritated human skin may produce impetigo staphylogenes, furuncle, and abscess, it never produces eczema; (2) that while isolated living and virulent staphylococci of the varieties specified, free from toxins, produce impetigo staphylogenes when inoculated on the skin, they never cause eczema; (3) that filtered bouillon cultures of these staphylococci can produce on the human skin, with or without previous irritation, and with or without disinfection, typical acute papular or vesicular eczema when applied by means of moist, warm bandages for a period of from twenty to forty-eight hours; (4) that it is the staphylococcus toxin, and not the staphylococci themselves, which produces eczema. In a later number of the same journal (Nov. 1, 1901) Bockhart boldly says, "Staphylococci are the originators of eczema"—by means, that is, of their toxin.

On the other hand, Reibich examined bacteriologically the two to four-days-old vesicles of forty-one cases of eczema, and found them for the most part sterile. Later in the course of the disease he found staphylococci and streptococci, but was unable to produce eczema

<sup>1</sup> *Monats. f. prakt. Derm.*, Bd. xxxiii., No. 4, Aug. 15, 1901 (abstr. in *Brit. Journ. Derm.*).

experimentally by inoculation with these. Veillon<sup>1</sup> also examined the fresh vesicles of ordinary eczema, and found them, almost without exception, sterile. Secondary infection with staphylococci and streptococci is common, but Veillon was unable to produce an eczematous eruption with those which he isolated. The serum of a horse immunised against the staphylococci, isolated, exhibited no influence on the course of the disease in the human subject. The accuracy of the observations of Reibich and Veillon is confirmed by Dr. Wilfrid Warde,<sup>2</sup> who repeatedly found the clear eczema vesicle to be amicrobial. Fritz Veiel<sup>3</sup> remarks that although a number of observers claim to have produced eczema by inoculation of staphylococci, no one has produced in this way a genuine chronic eczema, but he agrees with Neisser that staphylococci play an important part among the agencies that determine eczema and the course it runs.

The microbial theory must therefore for the present be dismissed as not absolutely proven, though it is impossible to believe that micro-organisms known to possess definite pathogenic properties can be present in such numbers as they have been proved to be by competent observers without having a considerable effect on the character and severity of the disease, and there can be little doubt that many so-called pustular eczemas are from the first staphylococcic or streptococcic infections. The success of treatment based on the parasitic theory is a strong argument in favour of its truth in regard to a large proportion of cases. On the other hand, we know that the organisms referred to are harmless to a healthy skin. The ground must therefore be prepared for their action. Neisser holds that this is done by external irritants.

<sup>1</sup> *Ann. de Derm. et de Syph.*, No. 6, 1900.

<sup>2</sup> *Brit. Journ. Derm.*, Oct., 1903, p. 349.

<sup>3</sup> *Munch. med. Woch.*, Jan. 6, 1904, p. 13.

But how is the ground prepared when there are no irritants? The distinguished Breslau professor gets over this difficulty by giving the chief place among "irritants" to soap and water. Thus, in his view, except among the "great unwashed," the human skin is always at the mercy of this golden-yellow staphylococcus. Galloway and Eyre include among predisposing factors:

1. Certain organic lesions, especially such as produce circulatory stasis in the skin and consequent œdema and malnutrition of both cutis and epidermis.
2. The seborrhœic state, which permits the free growth of vegetable parasites, and especially of certain bacteria.
3. Certain conditions of imperfect metabolism, which predispose to the onset, or at any rate the recurrence, of eczema; of these the most common are those associated with improper digestion and assimilation of food.

Want of exercise, the impure atmosphere in cities, etc., aggravate this condition and increase the risk of recurrent attacks.

Galloway and Eyre make no mention of a factor to which I am disposed to attach considerable importance; that is, nervous shock and prolonged mental depression. I have so often seen the disease develop on skin previously quite healthy that I cannot doubt that the derangement of the nervous mechanism brought about by the influence of the mind on the body has been reflected on the integument. Bulkley<sup>1</sup> gives some striking examples of eczema following worry, mental strain, and nervous shock. More than one case traceable to the "Black Friday" financial panic in Wall Street came under his notice. According to Radouan, the siege of Paris by the Germans and the brief "reign of terror" of the Commune in 1871 left their impress on the skins of many persons in the form of

<sup>1</sup> "On the Relation of Eczema to Disturbances of the Nervous System," *Med. News*, Jan. 2, Feb. 7, 1891.

eczema.<sup>1</sup> I have myself known the disease in its acutest form follow a fright.

The nervous depression caused by chill manifests itself in some persons as catarrh of the skin—that is, eczema—just as in others it shows itself as catarrh of the respiratory membrane, and in others again as catarrh of the intestine. Thus a man may go to business in the morning on the top of an omnibus, being at the time to all appearance in perfect health; he may feel that he has “taken a chill,” and begin to shiver and complain of general *malaise*; on reaching home in the evening, however, he may find that, instead of a catarrh of his mucous membrane, he has developed a well-marked eczema. Reflex nervous irritation from the uterus, the stomach, the intestine, etc., often seems to be the exciting cause of eczema. In some women menstruation and pregnancy are generally accompanied by an attack of eczema, and the disease is also not uncommonly one of the indications of the “change of life.” Eczema is sometimes a result of the irritation caused by indigestible food in the stomach, or by worms in the intestinal canal.<sup>2</sup> The origin of eczematous eruptions beginning on the cheeks, eyelids, etc., has been traced to disturbances of vision, and the skin lesions have ceased to appear when the eye affection has been cured.<sup>3</sup>

Unna has described a special type of eczema on the face in infants occurring in connection with dentition.<sup>4</sup>

<sup>1</sup> “Étude théor. et prat. sur l'Eczéma,” Thèse de Paris, 1875. On the nervous origin of eczema, see Kromayer, “Allgemeine Derm.,” Berlin, 1896.

<sup>2</sup> Scarenzio (quoted by Bulkley, *loc. cit.*) records two cases in which eczema was due to the presence of tapeworm, and one in which it depended on the oxyuris.

<sup>3</sup> Juler, *Lancet*, 1884.

<sup>4</sup> *Journ. Cut. and Gen.-Urin. Dis.*, Dec., 1887.

Dr. Arthur J. Hall, in an elaborate analysis of sixty cases of infantile eczema under his care between the years 1897 and 1903,<sup>1</sup> maintains that neither dentition nor vaccination can be the cause in most cases, nor does the evidence support the theory which finds the cause in digestive disturbance or malassimilation. Holding the microbic theory also to be not proven, he attributes infantile eczema to such external irritants as chill to the skin, imperfect drying, soaps, irritating dust in the atmosphere, the sweat of the mother's skin, and the secondary action of micro-organisms. His chief reason for tracing the affection to some or all of these irritants is the fact that in 95 per cent. of his cases the rash first appeared in what was practically the only exposed part of the infant, the head or face. Reviewing a further series of forty cases in January, 1908, he holds that it supports his earlier conclusions. Of the hundred cases, there were ninety-six in which the head or face was the part first affected. He suggests broadly that eczema, whether in infants or in adults, is a form of reaction of the neuro-cutaneous apparatus to the external irritation. For my part, I am inclined to think that in the majority of infantile cases the production of the skin affection is rather to be explained by the seborrhœa which is apt to be set up by the abnormally large amount of blood supplied to the head in infants for the building up of bone and brain. The same influence is more or less actively at work in all growing children; hence the frequency with which seborrhœa is met with at that time of life.

Eczematous eruptions may also be produced by reflex irritation of peripheral origin, as in the case of burns, etc.; or they may be a consequence of changes in the nerves resulting from injury or disease, or they

<sup>1</sup> *Brit. Journ. Derm.*, May, June, July, Aug., 1905.



may be connected with functional neurosis.<sup>1</sup> Colomiatti<sup>2</sup> found structural changes in the cutaneous nerves in several cases of eczema, mostly of the papulo-squamous type; and that these changes were in direct relation to the process in the skin he held to be proved by the fact that in cases in which the skin lesions were wholly or partly cured the nerves also had in great measure recovered their normal appearance. These observations were afterwards confirmed by Leloir.<sup>3</sup> Of the relationship between eczema and certain forms of functional neurosis there cannot be a better illustration than the fact that it is frequently associated with asthma; so close, indeed, is the connection between the two affections, that asthma is believed by some to be—at least in certain cases—simply eczema of the bronchial tubes. It is noteworthy that persons who are the subjects of xerodermia very frequently also suffer from asthma. It is probable that both the eczema and the asthma are the response by the skin and respiratory mucous membrane respectively to some central or peripheral irritation to which both alike are exposed. Cases have been reported by Charcot, Vulpian, and others in which eczema occurred in association with disease of the brain or spinal cord, but there is not yet sufficient evidence to show whether the skin affection in these cases was the result of the nerve disease or an accidental coincidence. Anything, however, which interferes with the proper nutrition of the skin lessens its power of resistance to injurious influences, and in this way disease of the central nervous system may be regarded as a predisposing cause of eczema. The affec-

<sup>1</sup> Examples of eczema following these different forms of nerve disorders are cited from various authors by Bulkley, *loc. cit.*

<sup>2</sup> *Giorn. Ital. d. Malattie Vener. e d. Pelle*, 1879.

<sup>3</sup> *Ann. de Derm. et de Syph.*, 1890.



tion is said by some observers to be frequent among the insane.<sup>1</sup>

The exact mode in which eczema is induced by nerve disorder is still somewhat obscure. Such evidence as is available is almost entirely clinical. It is certain that under the influence of nerve shock and nerve exhaustion (neurasthenia), eczema may arise *de novo* in a previously healthy skin. In such circumstances the trophic influence of the nervous system on the skin is, to a greater or less extent, impaired; and, according to Leloir<sup>2</sup> and Bulkley,<sup>3</sup> eczema may be the result. In other words, eczema is, in the opinion of these dermatologists, simply a trophoneurosis. It is not quite certain, however, that something more is not required for the development of a process so complex in its manifestations as eczema. There is something to be said for the view that the inhibition of trophic influence does nothing more than prepare the way for eczema by reducing the skin to a condition in which it is powerless to resist the action of micro-organisms.

As regards reflex irritation, the case is somewhat different. It has already been shown that vaso-motor disturbance alone is sufficient to produce all the essential lesions of the eczematous process. Even here, however, microbes must often intervene, or there would be no pustules. While, therefore, not prepared to go the length of maintaining, with Unna, that eczema is always microbic, I am still less disposed to accept the view of Leloir and Bulkley that it is never anything more than a neurosis. That in the majority of cases eczema is parasitic is proved by the effect of anti-parasitic treatment; that there are many cases in which the affection is of nervous origin is shown by the fact that

<sup>1</sup> Fèvre and Nicol, quoted by Bulkley, *loc. cit.*

<sup>2</sup> "Recherches cliniques sur les Affections cutanées d'origine nerveuse," Paris, 1882.

<sup>3</sup> *Loc. cit.*

it may be cured by remedies which act on the nervous system. Moreover, in many parasitic cases the neurotic element may be so pronounced as to furnish the leading indication for treatment.

Apart from the condition of the nervous system, I attach little importance to the constitution of the patient as an etiological factor in regard to eczema. The tendency to that affection is sometimes found associated with rheumatism, and sufferers from gout are prone to eczema as they are to other forms of catarrh. There is not, however, any form of skin lesion known to me which can properly be called "gouty eczema"; in other words, there is no special type of eczema that can be recognised objectively as of gouty origin. Brocq<sup>1</sup> describes an *eczéma erysipélateux récidivant des arthritiques*, characterised by the rapid occurrence of inflammatory attacks of great intensity, almost always affecting the head and face, sometimes the hands, genitals, etc.; the skin is swollen and red as in erysipelas, and constitutional disturbance is more or less severe. Although gout is so common in Great Britain, I am not familiar with a type of skin affection answering to this description. In Germany, where gout is comparatively rare, eczema is just as common as it is in England. But while denying that gout is of itself sufficient to produce eczema, I am willing to admit that the gouty diathesis or any other constitutional state characterised by a tendency to sudden vaso-motor disturbance may aggravate the skin affection to such an extent as to require to be taken into account in treatment.

There is no connection between eczema and rickets, nor has malnutrition any direct influence in its production. The disease is just as common in the well-nourished children of well-to-do people as in those of the

<sup>1</sup> *Op. cit.*, pp. 154-55.

poor, and breast-fed infants are no more exempt from it than those brought up by hand. Nor has scrofula anything to do with the production of eczema, except in as far as proclivity to catarrh is one of the notes of the scrofulous diathesis. It is true that many children suffering from eczema are the subjects of scrofula, but, on the other hand, there are far more eczematous children than scrofula can account for. It is almost unnecessary to say that, although scrofula cannot produce eczema, it may have a powerful modifying influence on the lesions.

Eczema is not as a rule contagious, but when complicated by micro-organisms it is auto-inoculable; in this way it reproduces itself in distant foci, while individual patches continue to spread at the edge. Sometimes it appears to be inoculable from one patient to another. Thus the arms of nurses who carry babies suffering from eczema of the nates may become irritated, and eczema may be induced by scratching.<sup>1</sup>

To sum up: eczema in a large proportion of cases is of microbic origin, but the organisms cannot produce the lesions unless they find a suitable soil in which to proliferate. In some cases the skin is made suitable for this purpose by seborrhœa or other pre-existing morbid condition; in others by diminished resistance owing to loss of nerve control. In another class of cases the disease may possibly be altogether of nervous origin. When once started it spreads from one or two centres by auto-inoculation if parasitic, by reflex irritation if neurotic.

**Pathology.**—Eczema is essentially a catarrhal inflammation of the skin, and the appearances found are those characteristic of that process, being more or less marked in proportion to its severity. Plate xv. shows well the microscopical appearances presented by a

<sup>1</sup> Jamieson, *op. cit.*, p. 215.

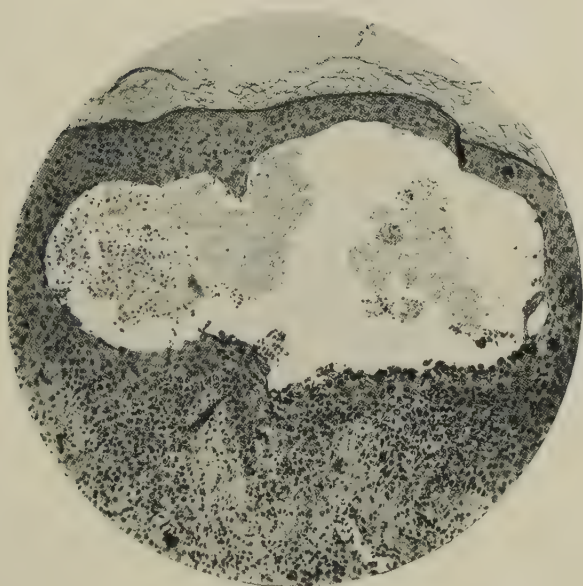


PLATE XV.—MICROSCOPIC SECTION OF ECZEMA  
VESICLE (GILCHRIST).



vesicle. Colomiatti, as already said, found changes indicative of neuritis in the nerves supplied to the affected parts of the skin, and in one case<sup>1</sup>—that of a patient suffering from acute universal eczema, who died of pneumonia—"the upper cervical ganglia of the sympathetic, as also the celiac ganglia, were visibly hyperæmic to the naked eye, and on microscopic section the changes were still more evident." No conclusion can, however, be drawn from a single case, and it is obvious that the changes in the sympathetic ganglia here described may have been connected with the inflammation of the lung rather than with the eczema.

When eczema has lasted some time it often gives rise to thickening and hardening—sometimes almost wooden in consistence. In certain rare cases the hypertrophy may be so great as to simulate elephantiasis. In other cases a persistent warty condition may be induced.

**Prognosis.**—Eczema can nearly always be cured by a proper course of treatment perseveringly pursued. In many cases, however, the condition is extremely obstinate, and recurrence is the rule rather than the exception. When the neurotic element is strongly pronounced the prospect of cure is much less favourable than in cases of seborrhœic origin. The age and general health of the patient must be taken into account in forming a prognosis:

<sup>1</sup> Maracci: *Giornale Ital. d. Malattie Vener. e d. Pelle*, 1878.

## CHAPTER XIII

### ECZEMA : TREATMENT

WITH regard to **treatment**, the question that meets us on the threshold is whether eczema should be treated at all. There is a popular notion that the affection is a kind of safety-valve which it is dangerous to close ; nor is this idea confined to the laity. So experienced a practitioner as Brocq warns us against interfering too actively with eczema in elderly persons or in gouty, rheumatic, emphysematous, and asthmatical subjects, or sufferers from chronic bronchitis, melancholia, Bright's disease, dyspepsia, etc. "By treating their eczema too energetically one may, in fact, determine the onset of pulmonary or even cerebral congestions of the gravest kind." <sup>1</sup> He has reported a case in which he believes that "the sudden suppression of a chronic pruriginous eczema of several years' date in a patient suffering from old asthma, melancholia, and troubled with occipital and temporal neuralgia, was followed by the appearance of morbid phenomena of cerebral origin, of a nature so grave as to even put the life of the patient in danger ---phenomena which lasted for many months, and which all disappeared completely as soon as an 'issue' was formed on the nape by means of a blister or the cautery, but especially after the reappearance of the pruriginous eczema of the genitals." <sup>2</sup> Brocq expressly says

<sup>1</sup> "Traitement des Maladies de la Peau," Paris, 1890, p. 173.

<sup>2</sup> "Accidents which may follow the Suppression of a Chronic Eczematous Eruption" (*Brit. Journ. Derm.*, vol. i., Nov., 1888, to Dec., 1889, p. 105 *et sqq.*).



that eczema in certain "morbid determinations" affecting internal organs acts as a derivative—in fact, as a kind of emunctory.<sup>1</sup> A similar view is strongly held with regard to eczema in children by Gaucher.<sup>2</sup> He distinguishes between seborrhœa, which he says is a local affection, the cure of which cannot be followed by any ill effect, and true eczema—whether of the oozing or papular (lichenoid) form—which he looks upon as an affection originating from an internal "diathetic" cause. This eczema he believes it to be dangerous to cure, especially in the case of children. Gaucher appears to regard eczema as a provision of nature for the elimination of "toxic principles" resulting from constitutional and often hereditary disorders of nutrition. By shutting up this outlet these toxic principles are made to accumulate in the internal organs, "with consequences more or less rapid and more or less serious, according to the seat of the metastasis."

In other words, Gaucher shares the superstition which is so widely prevalent among the public as to the dangers of "driving in" the disease. Holding, as I do, that in a large proportion of cases eczema is of parasitic origin, and that the constitution, when involved at all, plays but a secondary part in the process, I am utterly opposed to the *laissez-aller* principle in dealing with the disease. The caution in treating eczema which is so emphatically enjoined on us is based on the assumption that we have a power of controlling the process which we are very far from possessing. Even if the "abrupt soothing down of the cutaneous phenomena" deprecated by Brocq were as dangerous as he believes, the practitioner need not be afraid to treat

<sup>1</sup> *Brit. Journ. Derm.*, vol. i., Nov., 1888, to Dec., 1889, p. 111.

<sup>2</sup> Congrès Intern. de Derm. et de Syph., tenu à Paris en 1889, p. 538 et sqq.

them, since it is quite exceptional for the disease to be "abruptly soothed down" by any means at our disposal. My view, therefore, is that the practitioner should endeavour to cure eczema whenever he meets with it; the only caution necessary is that he should accurately adapt his remedies not only to the process but to the patient.

The first step towards successful treatment is to determine whether the disease is of parasitic or of neurotic origin—that is to say, whether it is to be dealt with by local or by general remedies. As already said, these two etiological elements are often combined, and in that case it is important to ascertain which of them predominates in a given case.

**Internal remedies.**--In dealing with eczema the beginning of therapeutic wisdom is to clear one's mind of the notion that arsenic or any other drug is a specific. The practitioner must learn not to look upon it as a fixed law that internal remedies are to be given in every case. As a general rule, indeed, the less drugging the better. But if internal remedies have to be employed, they should be given only for a definite purpose and in accordance with definite indications. Random polypharmacy is often hurtful to the patient and an obstacle to scientific progress. How can we expect to gain any accurate knowledge of the action of medicines if they are used by the half-dozen at a time, like charges of small shot fired at the disease?

For the subduing the inflammation in acute generalised eczema there is, in my experience, nothing equal to *antimony*. Small doses of the *vinum antimoniale* quickly relieve the arterial tension and thus reduce the local inflammation. If the patient's constitution is sound, I generally begin by giving  $\mathfrak{m}x$  to  $\mathfrak{m}xiiij$  of the wine, repeating the dose in an hour, and, if necessary, again two hours later. The interval be-

tween the administrations is gradually increased, while the amount is diminished till a dose of  $\text{m}\nu\text{j}$  is reached. This should be given three times in the twenty-four hours as long as the acute symptoms last. When there is no great arterial tension, and when depression is a prominent symptom, antimony should not be given. In babies and young children small doses of calomel at bed-time occasionally are of great service. In all acute inflammatory conditions of the skin, iron only adds fuel to the flame by increasing the activity of blood formation. Arsenic also is contra-indicated in such circumstances. Stimulants must be forbidden, the diet should be of the simplest kind, and the bowels must be carefully regulated. The clothing should be light, and it is particularly important that the patient when in bed should not be covered with heavy blankets, as the symptoms are always intensified at night. Complete rest, both of mind and body, should as far as possible be secured. If the area of skin involved is very extensive, the patient should be kept in bed. When nervous symptoms are pronounced, appropriate sedatives must be administered. In the front rank of these is *opium*, which, if need be, should be given during the day as well as at night; sometimes it may be necessary to keep the sufferer almost continuously under the influence of opium or morphia. In such cases the constipating effect of the drug should be counteracted by giving a mild aperient, such as Carlsbad salts, Friedrichshall, or other saline purgative, in the morning. If opium disagrees, *veronal*, *trional*, *chloral*, *sulphonal*, or *phenacetin* may be substituted for it. If prostration is a marked feature of the case, it will be well to commence treatment by giving *quinine*; this remedy may often, with great advantage, be combined with opium. In chronic neurotic cases *arsenic* sometimes does good, but my experience is that this drug can never

be relied on in eczema. *Strychnine*, and especially *phosphorus*, are more frequently of use in such cases, and *ergot* may occasionally prove serviceable, probably by its action on the vaso-motor apparatus. In women, at the climacteric period, and in hysterical subjects, such remedies as *musk*, *valerian*, etc., should be used; and in all cases, if any definite source of peripheral irritation can be discovered, it should, if possible, be removed. When the discharge is very profuse, *quinine* may usefully be combined with *belladonna*. When the disease is very rebellious, fresh exacerbations occurring every few days, Crocker has found counter-irritation (by means of blistering fluid, mustard-leaf, etc.) applied over the vaso-motor centres of the part, very useful.<sup>1</sup> In all cases the patient's general health must be attended to, complications like dyspepsia, etc., being dealt with as the occasion arises, and constitutional conditions such as rheumatism, gout, diabetes, renal disease, rickets, and scrofula being treated in accordance with the general principles of practice.

**Local treatment.**—Although internal medication may be a useful adjuvant in the treatment of eczema, the practitioner who, from a mistaken belief in the constitutional nature of the disease, trusts entirely thereto will find that he is leaning on a broken reed. Eczema, being in a large proportion of cases of microbic origin, can be cured only by appropriate local remedies, and in seborrhœic cases, when the patient's general health is sound, no other treatment is required. It must, however, be understood that for local treatment to be successful two conditions must be fulfilled. First, the strength of the application employed must be judiciously tempered to the intensity of the process which it is intended to combat; secondly, the lesions must be kept continuously under the influence of the

<sup>1</sup> "Diseases of the Skin," p. 182, 3rd edition, 1903.

remedy. The mere perfunctory application, morning and evening, of a solution or an ointment can have little or no effect in checking the disease. The guiding principle in local treatment must be to destroy the irritant while soothing the inflammatory reaction set up by its presence.

A necessary preliminary to local treatment is the removal of all crusts and scales that prevent the free access of the remedy to the seat of disease. They can be softened by means of oil applied on strips of lint, or weak solutions of bicarbonate of soda. Crusts are readily loosened by keeping the parts covered for a few days with thin indiarubber; this method is especially useful on the head and limbs. When the crusts have been got rid of, the next step is to attack the disease directly. In the local treatment of eczema three objects have to be kept in view. First, the removal of any source of irritation; secondly, the protection of the inflamed surface from the air and from possible invasion by fresh microbes; thirdly, the relief of itching. As it is of the utmost importance not to aggravate the inflammatory process, an unirritating parasitocidal agent should be employed in the first instance; the strength of the application should be very moderate to begin with, and may be gradually increased as the symptoms subside. When there is much discharge *a weak solution of boric acid* is particularly useful for the washing of the affected part. The lotion should be dabbed on with a wet cloth. A towel should not be used, but the discharging area may be dried by means of muslin bags containing starch, with a small quantity of powdered boric acid. Sometimes the parts are so sensitive that the patient cannot bear this application; in that case, talc or starch mixed with a little powdered boric acid should be dredged over the oozing surface. This procedure is, however, attended with the disadvantage that the powder

becomes caked on the part, making it stiff and painful to move. It should be removed with weak carbolic-oil.

During the acute stage the parts should never be washed with water, and even when the violence of the inflammation has subsided, washing should not be frequent, and friction with towels should be carefully avoided. Hard water should on no account be used; only rain-water or water that has been boiled should be allowed to come in contact with the eczematous skin. It is better not to use soap of any kind, but if any must be employed, one of the superfatted medicated class introduced by Unna should be selected.

For the protection of the inflamed surface from the air, and for the relief of irritation, greasy applications in the form of "creams" are most useful. These should be as emollient as possible. The following formula may serve as an example :—

Rx	Zinci oxidi	..	..	..	..	5vj
	Adipis lanæ hyd.	..	..	..	..	5ij
	Ol. olivæ	..	..	..	..	3j
	Liquor calcis	..	..	..	..	3j

Some ointments have a tendency to heat the skin, while others impart a feeling of coolness to it. Unna attributes the latter property to the fact that in these "creams" a certain proportion of water is combined with the fatty base; this facilitates evaporation.<sup>1</sup> A useful cooling salve consists of the following ingredients :—

Rx	Aq. rosarum	..	..	..	..	10·0
	Ol. amygdal.	..	..	..	..	10·0
	Ceræ albæ	..	..	..	..	1·0
	Cetacei	..	..	..	..	1·0

This cold cream forms a good base for various com-

<sup>1</sup> *Monats. f. prakt. Derm.*, June, 1884.



pound ointments, and may be made the excipient for different antiseptic agents. For the continuous application of parasiticial agents, pastes, salve muslins, sticks, plaster muslins, and varnishes may be employed. A useful *paste* may be formed by mixing equal parts of starch and zinc ointment; to this any antiseptic that may be desired can be added. The following is the formula of Lassar's paste, which is valuable both by itself and as a basis for other drugs:—

R	Acidi salicylici ..	..	..	..	..	gr. 10
	Vaselini ..	..	..	..	..	℥ss
	Zinci oxidi ..	..	..	..	..	℥ij
	Pulv. amyli ..	..	..	..	..	℥ij

Resorcin, ichthyol, tar, etc., can be added to this paste. *Sticks*, as suggested by Brooke of Manchester, may also be the vehicles of antiseptic agents. The base of the stick is cocoa butter, and in this way boracic acid, salicylic acid, ichthyol, oxide of mercury, resorcin, sulphur, etc., may be kept in contact with diseased surfaces. Both the pastes and sticks may be flesh-tinted with Armenian bole, so that they can be used on the face or hands without exciting notice.<sup>1</sup>

*Salve muslins* were introduced by Unna, and form a very convenient means of keeping remedial agents in continuous contact with the parts on which it is desired to act. These consist of muslin spread with a consistent layer of benzoated lard and wax; vaseline or lanolin may, if desired, be substituted for the lard. These salve muslins may be the vehicles of carbolic acid, sulphur, resorcin, etc.; pieces of the salve muslin of the size required may be cut off and accurately fitted to the part to be treated. The salve muslins may be

<sup>1</sup> Methods of colouring ointments so as to match with the colour of healthy skin have been described by Brooke (*Brit. Journ. Derm.*, 1890, p. 186).



obtained spread on both sides. These preparations form the most convenient means of treating eczematous lesions in which the discharge is no longer profuse. The salve muslins are of use in the earlier, acute stages of eczema; *plaster muslins* are best adapted for chronic patches left behind when the acute stage is past. These plaster muslins may also be the vehicles for every kind of local remedy. Another equally convenient method of keeping remedies in contact with eczematous lesions is the *glycerine jelly* or *varnish* employed by Pick and modified by Unna. The advantage of these varnishes is that they can be applied to any part of the body, so as to form a tight-fitting and at the same time pliable covering, which can be easily removed and readily reapplied. Allan Jamieson<sup>1</sup> envelops the raw, denuded, "weeping" surface with a starch jelly, with which is combined a proportion of boric acid.

In all cases, as has already been said, it is advisable to commence local treatment with very mild applications. One must feel one's way, so to speak, as it is impossible to know beforehand whether a particular remedy may not cause irritation. The best application in seborrhœic and all other parasitic forms of eczema is *sulphur*. At first a small quantity of sulphur, combined with a soothing application, such as zinc ointment, should be used. The proportion of *gr. x of precipitated sulphur to 3j of zinc ointment* is quite strong enough to begin with; the amount of sulphur should be gradually increased if the application is well borne. The ointment should be spread on strips of thin linen, which must be laid evenly on the part and fixed with a bandage. If the face is the part to be treated, it should be covered with a mask. *Resorcin* may be employed in the same way. Both that drug and sulphur have this special

<sup>1</sup> Presidential address, section of Dermatology, Annual Meeting B.M.A. at Edinburgh: *Brit. Med. Journ.*, August, 1898.

advantage, that they not only destroy the micro-organisms on the surface, but cause rapid exfoliation of the horny layer. *Ichthyol* is useful in acute forms of eczema for its sedative as well as its microbicidal properties. In a large number of cases a solution of ichthyol in water (1 in 16 to begin with) painted over the inflamed area, or in an ointment, will allay irritation, cause contraction of the cutaneous blood-vessels, and allay the discharge. In seborrhœic eczema ichthyol is best applied in the form of the varnish recommended by Unna, the composition of which is as follows:  $\mathcal{R}$  *Ichthyol* 40 parts, *starch* 40 parts, *albumen* 1 to  $1\frac{1}{2}$  part, *water* to 100 parts; or the albumen may be omitted and the proportion of the other ingredients modified as follows:  $\mathcal{R}$  *Ichthyol* 25 parts, *carbolic acid*  $2\frac{1}{2}$  parts, *starch* 50 parts, *water*  $22\frac{1}{2}$  parts.

Patches of chronic eczema may be the result of the acute form or the remains of seborrhœic affection. In the latter case they should be treated with stronger applications of sulphur and other antiseptics spread on linen, or, better still, in the form of the plaster muslins already referred to. Chronic eczematous patches of non-seborrhœic origin are often the seat of violent itching; this can generally be relieved by applications of carbolic acid with a sponge or on a piece of rag. The following is a useful formula:—

$\mathcal{R}$	<i>Acidi carbolici</i>	..	..	..	..	3j
	<i>Glycerini</i>	..	..	..	..	3ij
	<i>Aq.</i>	..	..	..	..	ad 3viij

M.

A lotion of *tar*, in the form of *liquor picis carbonis*, (3ij to 3viij of water), and a weak solution of *nitrate of silver in sp. æth. nit.* (gr. xx to 3j), are also useful for the same purpose. For the resolution of the patches a plaster muslin of *yellow oxide of mercury*, with or with-

out resorcin, is a serviceable application. For the same purpose tar can be used in the form of ointment either alone or in combination with mercury. The following may be given as examples:—

R	Liq. picis carbonis	..	..	..	..	3ss
	Hyd. ammoniati	..	..	..	..	gr.xv
	Paraffini mollis	..	..	..	..	3j
or,	Ol. rusci	..	..	..	..	3ij
	Hyd. subchloridi	..	..	..	..	gr.xv.
	Paraffini mollis	..	..	..	..	3j
or,	Ung. picis liquidæ	}	— a a	..	..	3ss
	Ung. zinci					

Salicylic acid in a plaster or as an ointment is of service in chronic eczema of palms and soles.

One of the best remedies for thickened chronic patches is *chrysarobin*; but the patient must be warned that the application sometimes causes redness and pain, and stains linen and clothes. It is best applied in the form of an ointment (the *ung. chrysarobini* B.P. being the most suitable), or in the form of a plaster muslin. For the varicose eczema of the legs Martin's bandage or elastic stockings should be worn.

Certain modifications of local treatment are necessary according to the part that is the seat of disease. Thus between opposing surfaces, as between the scrotum and the thigh, beneath breasts in stout women, etc., there should be placed long narrow bags made of thin cambric or muslin, and partially filled with *starch powder*, *powdered boric acid*, or a mixture of *powdered talc* (87 parts), *powdered starch* (10 parts), and *salicylic acid* (3 parts); the parts are thus dried and kept in an antiseptic state. In seborrhœic eczema of the scalp and other hairy parts the hair should be cut short, and after softening and removal of the crusts, very weak *sulphur ointment* spread on strips of lint should be applied and fixed in position with a cap or bandage. About the ears, and on the

vulva, in both of which situations the swelling is often very great, astringent and cooling lotions, such as *lactate of lead and calamine lotion*, give great relief. On the face, as already said, the local applications should, in the case of children, be kept in position by a mask. When extensive areas of skin are involved, as on the arms or legs, swathing the parts in strips of linen soaked in calamine lotion, or a warm saturated solution of boric acid, generally relieves the irritation; but when the inflammatory process begins to subside stronger *antiseptics* must be kept continuously applied in one or other of the ways that have been mentioned.

Treatment requires to be adapted to the peculiar features of the disease manifested at certain periods of age. In infancy, when it generally starts from a focus of seborrhœa on the scalp, this should be treated by the gentle use of soap and water. Over-scrubbing should be avoided, and the soap should be superfatted. If there is any tendency to irritability of the scalp, the child should not wear a cap in the house, and its head should not be too warmly covered out of doors. A child's hands should never be tied to prevent scratching. The best local application is a very weak *sulphur ointment*—5 grains of *precipitated sulphur* to 1 oz. of *benzoated lard*. Xerodermia (which is sometimes associated with eczema) should be treated by soaking the dry hard parts with a mixture of 1 part of *glycerine* to 5 of *water*. For eczema at the menopause there is, in my experience, no remedy like *ichthyol* given internally in doses of  $2\frac{1}{2}$  grains after each meal at first, and gradually increased up to 10 grains or more. In the eczema of old age, when the irritation is severe, the best drug is *opium*. It should be combined with mild aperients if it causes constipation.

Good results have been reported from the treatment of eczema by *radiotherapy*, both in cases of the vesi-

cular type and in rebellious cases of chronic dry eczema. In several cases of the latter variety under the care of the author and Dr. Dore, distinct benefit followed the application of X-rays, though of course relapses may occur.

The *methods* of general and local treatment that have been described have often to be supplemented by other measures which, though not in themselves curative, are useful *adjuvants*. The chief of these are diet, clothing, hydrotherapy, and climate.

As regards **diet**, the practitioner must, in the first place, clear his mind of the superstition as to this matter which is so strongly implanted in the mind, not only of the public, but of a section of the medical profession, especially those of the older school. Their ideas on the influence of diet in eczema are founded on the belief that every skin eruption requires to be treated constitutionally. This notion, as has been seen, is entirely erroneous, and I cannot help suspecting that it has arisen at least partly in consequence of the ignorance which prevailed till lately as to the action and proper method of using local remedies. The excessive "lowering" diet on which so much stress is still laid by some is not only unnecessary, but positively contra-indicated, except when the inflammation is extremely intense.

In microbic cases dietetic treatment is comparatively useless, and a recognition of this truth will save patients a good deal of needless privation. I might quote, in proof of what has just been said, numerous cases in which patients have been most carefully dieted for long periods without their eczema being in the slightest degree benefited; whereas on removing all restrictions of diet, and treating the affection by local remedies, a cure has speedily followed. It is only in acute forms of eczema that beer and other stimulants need be forbidden. There

is no need to cut off either tea or coffee unless these beverages be definitely contra-indicated by flatulence, palpitation, gastric acidity, or insomnia. Sugar may be allowed, except in the case of patients of gouty constitution, or when contra-indicated by glycosuria.

The **clothing**, as already said, should be as light as is consistent with proper protection from cold. Too much clothing increases the activity of the sweat glands, and thereby makes the skin moist, and to some extent predisposes it to eczema. Only silk, fine linen, or soft wool should be worn next the skin.

**Hydrotherapy** has little direct effect on eczema, though by its alterative action on the system it may indirectly modify the affection of the skin. Sulphur waters—notably those of Harrogate, Strathpeffer, Luchon, Aix-les-Bains, and Schinznach—often have a markedly beneficial effect in cases of obstinate eczema. “Indifferent” waters, like those of Bath and Buxton, are often useful. Bromo-iodide waters are of use only in very chronic conditions. The arsenical waters of La Bourboule and Levico are also of service in similar circumstances. Aperient waters, like those of Carlsbad and Marienbad, are indicated in the case of stout or gouty patients on account of their constitutional effect. Weyner<sup>1</sup> recommends tar baths in chronic eczema, the crusts becoming detached and the infiltrated skin softened, so that the tar is enabled to reach the diseased surface.

Sea-bathing should never be indulged in while eruptions are present on the skin. I have, however, known patients subject to periodical outbreaks of eczema lose their proclivity to the disease as the result of a course of sea-bathing.

With regard to the influence of **climate** in the treatment of eczema, all that need be said is that,

<sup>1</sup> *Balneol. Centralzeit.*, Dec. 2, 1901.



the disease being catarrhal, climates favourable to the production of catarrh of any kind should as far as possible be avoided.

The eczematous process in the skin has been compared to inflammation of a joint. The same analogy holds good with regard to the treatment of these two conditions respectively. The first indication in dealing with an inflamed joint is to keep it at rest; the next to subdue the intensity of the process and bring about resolution or quiescence; lastly, the products of inflammation must, if possible, be got rid of, so that the joint shall recover its natural suppleness. In eczema the same objects have to be aimed at, with the further indication that the micro-organisms which find the lesions a favourable ground for their multiplication have to be destroyed or rendered inert.

To sum up: The fundamental principles which should guide the practitioner in the treatment of eczema are to soothe when the inflammatory process is acute, to stimulate when it is chronic, and in either case to keep the parts under the continuous influence of antiseptics and parasitocides of a strength carefully regulated in accordance with the intensity of the disease and the tolerance of the patient's skin.

A word of caution may be added as to danger of *over-treating* eczema. When the disease is quiescent or in active retrogression, a masterly inactivity will be found the best policy. In all cases the greatest vigilance must be exercised in the adaptation of the strength of the remedies to the disease. I have seen many cases in which the condition has been aggravated by injudicious use of baths and stimulating treatment.



## CHAPTER XIV

### PSORIASIS

**Psoriasis** is an affection of the skin characterised by flat, dry patches of varying extent, covered with white, silver-grey, or asbestos-like scales. There is no exudation, and consequently there are no crusts; the degree of scaliness varies from a thin film to a dense, heaped-up mass. On removing the scales—which are, as a rule, tolerably adherent—a smooth, shining hyperæmic surface is exposed, dotted here and there with deep red spots. This surface, which is the base of the lesion, though red, is not raw, and the tint varies from bright red in recent patches to a duller tint in those of older formation. The bright red spots, which can always be seen with the help of a lens, are the tops of the hyperæmic papillæ; these bleed very readily on being touched. The typical lesion—or what may be termed the pathological unit—of psoriasis is a scaly patch, rounded or irregular in shape, with a sharply defined border standing out slightly but distinctly on the surface of the skin, and a hyperæmic base underlying the covering of scales. When the disease is spreading the patch is surrounded by a narrow zone of redness, but this is wanting when the process is inactive. (Plate xvi.) The scales are of a dirty white colour on the surface, but on scraping away the uppermost layers, those underneath have the appearance of frosted silver.

The eruption first shows itself in the form of papules

of the size of a pin's head ; these are at first red, but they soon become white as the scales form. Besnier states that he has seen cases in which the appearance of scales was the first appreciable change. Whether scalliness precedes hyperæmia or *vice versâ* is a point of no clinical importance. It is certain that even when no scales are visible on the red ground of the initial lesion, they can be brought into view by gently scratching the surface. The papules spread in a centrifugal direction and form patches, which are usually roundish or oval in outline when small, becoming more irregular as they get larger. After attaining a certain size they may remain stationary for a long time, and then gradually disappear ; or they may continue to spread, and, becoming confluent, cover large areas of skin (Plate xvi.). The differences of aspect presented by the lesions at various stages in the evolution of the process have been dignified by distinctive names. Thus, the initial white scaly specks are sometimes spoken of as *psoriasis punctata* ; when the lesions are somewhat larger, so as to resemble splashes of mortar or drops of wax, the appearance is indicated by the name of *psoriasis guttata* ; when still larger, and rounded like coins, we have *psoriasis nummularis*, and so on. Other names sometimes used in describing the lesions of psoriasis are intended to denote not so much the shape as some other prominent characteristic. Thus, when the disease has involved extensive surfaces, the skin often presents a peculiarly harsh, dry, thickened, and cracked appearance ; this is sometimes called *psoriasis inveterata*. In other cases the scales may be heaped up into conc-shaped masses, arranged in layers forming concentric rings, and resembling rupial scabs ; to this condition the term *psoriasis rupioides* has been applied by M'Call Anderson.

Sooner or later the patches undergo involution. They first begin to fade in the centre, leaving rings

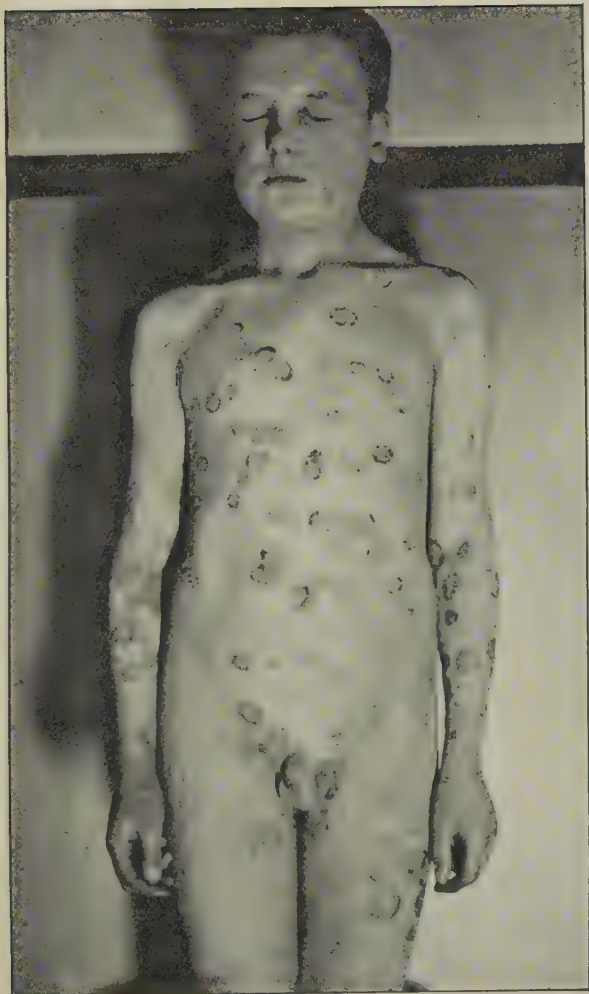


PLATE XVI. -ANNULAR PSORIASIS.



with a gradually narrowing border ; as the border itself in turn disappears at different points, segments of varying length remain, which, with similar relics of other patches, form wavy lines, festoons, and sometimes tracery of the most fantastic pattern. On the trunk it not unfrequently happens that as involution goes on at the centre, the patch continues to spread at the edge ; the spectacle is thus presented of a circle steadily increasing in diameter, the circumference being formed by a border which, while constantly advancing, never gains in width. To this condition the term "lepra" was formerly applied, but, apart from the possible confusion with the more formidable disease designated by that name, there is no advantage in using a special term to denote what is merely an accidental and evanescent appearance.

The lesions of psoriasis disappear completely, leaving behind only some redness, which soon dies away. In cases in which the process has persisted for a long time, a deep brown stain often remains ; pigmentation is particularly likely to occur when arsenic has been freely used in the treatment. In rare instances superficial atrophy may mark the site of the patches.

Psoriasis is nearly always symmetrical in its distribution. It particularly affects parts where the skin is thick and frequently stretched, and where it is exposed to friction by the clothes, etc. Its favourite and almost invariable starting-points are the tips of the elbows and the fronts of the knees ; it shows a special predilection for the extensor surfaces of the limbs. Next to these comes the hairy scalp ; then the trunk, especially on its dorsal aspect. The face is rarely attacked, except in young people and in inveterate cases ; the palms of the hands and soles of the feet still more seldom. As regards the proportion of cases in which these various parts are severally or jointly invaded, some idea may be

gained from the following statistics given by Nielsen.<sup>1</sup> In a series of 862 cases of psoriasis the trunk, the extremities, and the head were all affected in 489; the trunk and extremities in 197; the extremities alone in 113; the extremities and the head in 53; the head alone in 5; the trunk and the head in 4; the trunk alone in 1. These figures may be taken as representing the area of territory invaded by the disease when it is of sufficient severity to induce the patient to seek medical advice; doubtless, however, there are very many cases that never come under treatment, and in a considerable proportion of these the disease is probably confined to the extremities and the scalp.

The lesions of psoriasis are more or less modified in appearance by the anatomical structure or other peculiarities of the regions which are the seat of them. On the scalp they are generally met with as scurfy patches, yellowish or even brownish in colour, the red ground of the hyperæmic base showing here and there, especially about the margin of the hair; it often extends on to the forehead, which it seems to bind with a narrow circlet. Sometimes the scales are piled on the scalp in thick, firm masses like dry mortar, in which the hair is embedded. The disease does not usually interfere with the growth of the hair; it is only in cases of exceptional severity that it causes baldness. Psoriasis seldom attacks the hairy parts of the face.

On the scrotum the skin is often red, swollen, indurated, and fissured, a thin secretion sometimes oozing from the cracks. On the palms and soles the scales are usually heaped up into thick masses, which preserve the characteristic sharply-defined border; the lesions in these situations show little disposition to

<sup>1</sup> "Klinische und aetiologische Untersuchungen über Psoriasis," *Sonder-Abdruck aus Monats. f. prakt. Derm.*, Bd. xv., Nos. 7 and 8.

crack. On the nails the disease is sometimes situated in the matrix, in which case the nail becomes dull and transversely furrowed. As the scales are more and more heaped up underneath it, the nail splits and is pushed out of its bed. In other cases psoriasis of the nails shows itself as a discoloration about the free border; this gradually extends downwards to the root, the nail becomes thickened, but there is no soreness of the matrix. Other modifications of the appearances characteristic of psoriasis may be produced by causes of various kinds. Thus, previous treatment may have removed the scaliness, or the same result, together with other lesions, may be produced by scratching. It is to be noted also that when the process is very acute in character the scales are often shed very rapidly, and there may be nothing to be seen but a red, inflamed surface.

The **subjective symptoms** of psoriasis are seldom very pronounced. Itching is neither so constant nor so prominent a feature as it is in eczema; indeed, in many cases there is little or no irritation. No rule can, however, be laid down on this point, as patients vary greatly in their sensitiveness to itching; all that can be said definitely is that in the acute forms of psoriasis itching is generally more marked than in cases of the ordinary type. In the more chronic forms, especially in patches about the elbows and knees, the itching is so often entirely absent that the disease may exist for a long time without the patient paying any attention to it. There is seldom any pain in chronic cases, except when the skin is fissured; this is especially apt to occur over the "bathing-drawers area," where the skin sometimes cracks every time the patient sits down. In very acute cases the skin may be the seat of pain from tension with heat and tenderness. In a certain proportion of cases of psoriasis there are, according to some French writers—



notably Bourdillon<sup>1</sup> and Besnier<sup>2</sup>—pains about the joints resembling those of rheumatoid arthritis. Besnier gives the proportion of cases in which this complication occurs in his experience as 5 per cent. In the first edition of this book it was stated that the author had not seen any clinical evidence of a relationship between psoriasis and osteo-arthritis. Further experience makes it necessary for him to correct that statement. In the last few years he has seen several cases in which joint affection existed concurrently with psoriasis. Instances of the like association have been reported by Duckworth and Stephen Mackenzie. That the association is not common, however, is sufficiently proved by the experience of Brooke,<sup>3</sup> who states that in some hundreds of cases of psoriasis he has hardly met with a single one in which joint disease existed, although he has been on the look-out for it.

The course of the disease is essentially chronic, but it is subject to sudden exacerbations, during which it spreads over large areas. These exacerbations sometimes appear to be due to the influence of a particular diet, change of climate, or mental shock; in other cases they cannot be attributed to any definite cause. It is impossible to predict when or in what circumstances such an outburst may occur; some patients are attacked regularly once or twice a year, others at longer or shorter intervals. The disease, if left to itself, may last for months or even years, with intermissions of variable duration, during which it may entirely disappear. More frequently, however, patches remain on the elbows and knees in a state of inactivity until a fresh exacerbation occurs. Although a very large part of the cutaneous surface may be attacked, psoriasis is never absolutely universal.

<sup>1</sup> "Psoriasis et Arthropathies." Thèse de Paris, 1888.

<sup>2</sup> French translation of Kaposi's "Maladies de la Peau," 2nd edition, vol. i., p. 553 *et seq.*

<sup>3</sup> Allbutt's "System of Medicine," viii., p. 571.

However completely psoriasis may disappear, recurrence is merely a question of time. Cheloid, warts, and even carcinoma may develop on the site of the lesions, or the disease may become transformed into pityriasis rubra. The affection has generally little or no effect on the general health; Hebra considered that a certain standard of health is necessary for its development, and in fact patients have generally a robust appearance, their complexion being particularly clear and ruddy. In further confirmation of this it is to be remarked that if the general health is in any degree impaired the psoriasis tends proportionately to subside. Thus, during a severe attack of fever the patches often fade, breaking out again, however, as convalescence is established. During pregnancy the disease usually disappears, but may recur after the birth of the child.

Psoriasis in its clinical manifestations follows certain types, which may be briefly summarised as follows: There is a simple, uncomplicated psoriasis with occasional outbursts of activity seen in young persons, without any sign of impaired health; there is an acute, rapidly spreading form, associated with headache, asthma, and other nervous symptoms; there is the form which occurs in connection with osteo-arthritis, associated with severe constitutional disturbance; there is a psoriasis which tends to become transformed into pityriasis rubra. Lastly, there is a simple but a typical form which resembles seborrhœa.

As regards **etiology**, we are reluctantly compelled to agree with Brooke's admission that "notwithstanding researches in every direction—social, statistical, chemical, microscopical, and bacteriological—the cause of psoriasis is still unknown."<sup>1</sup> The disease is not common in early infancy, and it rarely begins after the age of fifty; it is, on the whole, more common

<sup>1</sup> *Op. cit.*

in youth than in later adult life. Statistics seem to show that men are somewhat more subject to it than women. Neither rank in life nor occupation has any influence in the production of the disease. It is to a certain extent hereditary, and Brocq<sup>1</sup> says that it is not uncommon to see gout or some form of neurosis replaced by psoriasis in one member of a family subject to the former complaints. Some dermatologists hold that gout is an important factor in a certain proportion of cases, and one even hears of "gouty psoriasis" as a special form of the disease. To me there appears to be no evidence to support this hypothesis. Season seems to have a certain influence, not so much in causing the disease as in increasing its intensity: thus the subjects of psoriasis are, as a rule, more liable to exacerbations in the spring and the autumn than at other seasons; recent cases, however, are often worse in the winter than at any other time. Polotebnoff has endeavoured to show that psoriasis is a neurosis of the skin; from an analysis of 67 cases he affirms that headache or other nervous disorder 'is present either in the patient himself or in other members of his family in a large majority of cases.'<sup>2</sup> It is certain that psoriasis often follows nervous shock, mental emotion, or depressing influences, such as insufficient nourishment, and in women child-birth or suckling. The neuropathic theory, however, rests on a very slight foundation of facts, and I am disposed to agree with Verrotti<sup>3</sup> that the nervous disturbance does no more than determine the locality of the eruption. Psoriasis also sometimes follows an abrasion or other injury of the skin, or even the irritation caused by the contact of clothes; in a case reported

<sup>1</sup> *Op. cit.*, p. 702.

<sup>2</sup> *Ergänzungsheft d. Monats. f. prakt. Derm.*, 1891.

<sup>3</sup> *Ann. de Derm. et de Syph.*, Aug. and Sept., 1903.

by Max Joseph<sup>1</sup> it appeared to be due to exposure to sunlight; it is occasionally one of the sequelæ of vaccination, and it has been known to follow an attack of erysipelas or scarlet fever. There can be no doubt, however, that a special predisposition is required for the development of the disease, and the causes that have been enumerated are probably only the immediate determining factors which set the process in motion at a given time. Lang of Vienna<sup>2</sup> attempted to show that psoriasis is a parasitic disease caused by a specific organism (*Lepocolla repens*), but this supposed fungus has since been demonstrated by Ries to be an artificial product. Destot, however, succeeded in producing the lesions of psoriasis on his own person by experimental inoculation with scales from a recent case of the disease; and at the International Medical Congress held at Copenhagen in 1884 Unna reported a case in which the disease appeared to have been communicated to three children by a nurse. A similar case came under the observation of Nielsen. Other cases in which there is *prima facie* evidence of the transmission of psoriasis from one patient to another have been recorded by M'Call Anderson,<sup>3</sup> Aubert,<sup>4</sup> Augagneur,<sup>5</sup> and others. Verrotti concludes that psoriasis is the result of an acid auto-intoxication, and that the activity of the psoriatic process is determined by the acidity of the blood and by the integrity of the renal functions. The skin, he holds, acts, in psoriasis, as a channel of elimination, supplementing or replacing the inadequate renal functions. In opposition to writers who have recorded observations tending to show that in psoriasis there is a

<sup>1</sup> *Derm. Centralbl.*, Sept., 1906, p. 358.

<sup>2</sup> Volkmann's *Samml. klin. Vortr.*, No. 208.

<sup>3</sup> "Psoriasis and Lepra," p. 37. 1865.

<sup>4</sup> Quoted by Nielsen, *loc. cit.*

<sup>5</sup> *Ibid.*

diminution of the nitrogenous co-efficient in the urine, Brocq and Ayrignac, as the result of experiments in which careful account was taken of the diet of the patients, maintain that there is no urinary modification which can be regarded as typical of psoriasis.

Race and climate have both a certain influence in the production of psoriasis. It is frequent among Jews, and rare among negroes. It is relatively common in northern latitudes, and rare in tropical climes.

There has been much debate as to the **pathology** of psoriasis, some considering the process to be essentially inflammatory, others a hyperplasia of the rete, others again a parakeratosis or anomaly of cornification. A contribution to our knowledge of the nature of psoriasis has been made by W. J. Munro,<sup>1</sup> whose researches were carried out in Sabouraud's laboratory. As the result of the examination of 1,500 sections of psoriasis furnished by six biopsies of nascent lesions in different patients before any treatment had been employed, and of the study of many hundreds of psoriatic scales, recent and old, he came to the conclusion that the primary lesion is a tiny "dry" abscess at the surface of the horny layer. Immediately after the first stage two phenomena supervene—first, hypertrophy of the epidermic horny layer; secondly, the formation around the primary lesion of a number of similar ones. Munro defines the squama of psoriasis as a multitude of little dried abscesses included between sheets of exfoliated horny epidermis. He failed to find any micro-organism in the lesions. He denies that psoriasis is "a vice of formation of the horny epidermis," and he holds that the hyperkeratosis is secondary to the primary lesion. Verrotti does not regard as the initial lesion the miliary abscesses described by Munro and Sabouraud. Among the other histological changes

<sup>1</sup> *Brit. Journ. Derm.*, 1900, p. 63 *et seq.*





PLATE XVII.—MICROSCOPIC SECTION OF PSORIASIS.



noted in psoriasis is the congestion of the vessels in the papillæ; the cells of the rete Malpighii undergo rapid multiplication and are at the same time much swollen (Plate xvii.). The stratum granulosum never forms; no granules of keratohyalin are formed. The swollen cells of the rete pass on, therefore, into an imperfectly cornified epithelium, constituting the distinctive scale of the disease. Blood cells frequently exude from the swollen papillary vessels, and become mingled with the rapidly dividing cells and overlying desquamating masses of cells. It has been shown by Robinson of New York and by Crocker that overgrowth downwards of the interpapillary cones of the rete takes place, with œdema and exudation of leucocytes in the papillary layer. The epidermic horny layer and the papillary layer are immensely hypertrophied; the stratum lucidum disappears; no eleïdin is to be seen, and the cornification of the epidermic cells either takes place not at all, or very imperfectly. According to Audry,<sup>1</sup> the absence of eleïdin, together with the defective cornification of the epidermic cells, is the essential pathological feature of psoriasis. The characteristic silvery appearance of the scales is due to the entrance of air within and between them. The overgrowth downwards that has been referred to gives rise to an appearance which, on microscopic examination, is found somewhat to resemble that of epithelioma; and in fact, as has been stated, psoriasis occasionally undergoes a malignant transformation.

The **diagnosis** of psoriasis in well-marked cases presents no difficulty. The patches with sharply defined border, covered with imbricated silvery scales; the bright-red points on a hyperæmic surface, bleeding easily when touched, which are exposed by removal of the scales; the absence of exudation at any period; the

<sup>1</sup> *Ann. de Derm. et de Syph.*, No. 4, April, 1893.

symmetrical distribution of the lesions and their predilection for the extensor surfaces of limbs, together with the unimpaired health and robust appearance of the patient, make up a clinical picture which can hardly be misinterpreted. In doubtful cases the fact of the eruption having first appeared on the elbows and knees is almost conclusive ; but if this element in the history be wanting, it is sometimes impossible to be sure of the nature of the disease. The affections that are most likely to be confounded with psoriasis are eczema, lichen ruber planus, lupus erythematosus, pityriasis rubra, and syphilis, in both the secondary and tertiary stages.

Eczema is distinguished from psoriasis (*a*) by its distribution—it prefers the flexures of joints ; (*b*) by the initial lesion—it generally begins in vesicles grouped on an inflamed base ; (*c*) by the serous discharge which is its characteristic feature ; (*d*) by the ill-defined margin of the patches, diseased fading insensibly into healthy skin ; (*e*) by the crusts, which are as characteristic of eczema as scales are of psoriasis. Less distinctive, but still important, features of eczema as compared with psoriasis are itching, which is at once more violent and more constant in the former than in the latter, and the muddy complexion, which often forms a marked contrast to the ruddy cheek of the subject of psoriasis. On the scalp, seborrhœic eczema almost always covers the whole surface, and often spreads on to the face and behind the ears to the neck ; psoriasis, on the other hand, generally occurs in patches and ends abruptly at, or very slightly beyond, the margin of the hair. Another point of difference is that while seborrhœic eczema, as a rule, spreads downwards from the head, psoriasis almost invariably spreads upwards from its favourite situations. In certain very chronic forms of eczema, when there are only a few scattered

patches with no history of an eruption on the elbows, or knees, or of "weeping," the diagnosis may be all but impossible. Even in such cases, however, the intensity of the redness, if the affected surface be at the same time dry, may be some guide. It may be well to recall here that by gentle scratching the characteristic scales of psoriasis can often be brought into view when previously invisible.

Lichen ruber planus is not likely to be confounded with psoriasis, except in the papular stage, when it sometimes presents an appearance resembling that described as psoriasis guttata. The former is, however, distinguished from the latter (*a*) by its preference for the flexor aspects of the wrists and knees; (*b*) by its characteristic shining smooth papules and the absence of scales; (*c*) by the bluish-red tint of its ground as contrasted with the bright red of psoriasis; (*d*) by its mode of extension, a lichen patch being formed by the aggregation of many papules, while psoriasis spreads at the edge. In doubtful cases careful search should be made over the whole body for the typical lesions of either disease; a single characteristic patch will settle the question.

Lupus erythematosus usually affects the cheeks, a part generally spared by psoriasis. In the former, moreover, scales are not abundant; the edge of the patch is more raised than in psoriasis, and the plugs in the orifices of the sebaceous ducts form a very distinctive feature. Further, there may be scarring in the patch and atrophy of the ears.

Pityriasis rubra is differentiated from psoriasis (*a*) by its rapid development; (*b*) by the fact that it is almost always universal, psoriasis hardly ever being so; (*c*) by its thin, wafer-like scales, through which the reddened skin shows distinctly.

As regards syphilides, the only trustworthy means

of distinguishing them from psoriasis lies in the history, in the simultaneous presence of other lesions of skin, glands, and mucous membrane, and in concomitant cachexia. Syphilis has been justly called the "great imitator," and there is perhaps no dermatologist who has not been led by it into errors of diagnosis; this can be avoided only by basing one's judgment on a comprehensive view of all the details of each case.

The **prognosis** in psoriasis is favourable as far as any particular attack is concerned. By appropriate treatment the lesions can almost always be made to disappear for a time. Recurrence, however, after a longer or shorter period of complete or comparative freedom from the manifestations of the disease is the rule.

**Treatment.**—Psoriasis must be treated hygienically, constitutionally, and locally. Attention must be paid to the clothing so as to avoid irritation of the skin, interference with perspiration, and chilling of the surface. Bulkley<sup>1</sup> has repeatedly seen such chilling followed by an outburst of the disease in a previously healthy person, and also by returns of the eruption. A warm and equable climate has often a most beneficial effect on psoriasis; and Schutz<sup>2</sup> has reported two very severe cases of generalised psoriasis in which spontaneous cure always took place on the patients exchanging their ordinary place of residence for a higher altitude.

As a general rule, no internal medication should be employed, except in response to a definite indication. Of internal remedies, *arsenic* is on the whole the most

<sup>1</sup> "Clinical Study and Analysis of One Thousand Cases of Psoriasis." Reprinted from the *Maryland Medical Journal*, September 19, 1891, p. 14.

<sup>2</sup> *Arch. f. Derm. u. Syph.*, xxiv., 1892.

effective in the majority of cases ; it is not, however, well borne by all persons, nor by the same person at different times. It is contra-indicated when hyperæmia is very marked ; in such cases it only does harm, intensifying the process, aggravating the itching, and actually causing extension of the disease. In chronic cases, however, arsenic is often undoubtedly of the greatest service. It may be given in the form of *Fowler's solution*, *freely diluted, beginning with a dose of three to four minims thrice daily after meals, gradually increased up to ten*, if no signs of intolerance manifest themselves. Kaposi gave arsenic in the form of *Asiatic pills, each containing  $\frac{1}{15}$  grain of arsenious acid*. He began with one pill thrice daily, gradually increasing the number to ten or twelve in the day, and continuing the administration, if necessary, for several months. If, after 500 or 600 pills have been taken, no decided improvement was observable, he considered that the drug had failed. It need hardly be added that during the administration of arsenic the effect should be carefully watched ; gastric or intestinal irritation should be subdued by opium. As already said, when arsenic has been freely given, and especially if its administration has been long continued, deep brown pigmentation is left, not only at the site of the patches, but over a more or less extensive area of skin. A peculiar thickening of the epidermis of the soles and palms is another occasional result of the prolonged use of arsenic in large doses. Hutchinson has described the development of corn-like projections, which may occasionally become the seat of malignant disease, as resulting from the same cause in very exceptional cases. Arsenic is of no value for the prevention of recurrence.

In acute forms of psoriasis, and in cases in which the subjective symptoms are very pronounced, I find *antimony* most useful. I give it in the form of *vinum antimoniale*  $\mathfrak{m}\nu$  to  $\mathfrak{m}\times$ , *thrice daily*. *Phosphorus* is also

useful under similar conditions. Crocker finds *salicylate of sodium* of great value, especially in the period of active development and in hyperæmic cases; it is useful in all forms, except perhaps in old chronic patches. If the drug causes dyspepsia, of course it must not be continued.<sup>1</sup> If symptoms of nervous disorder be present, nerve sedatives, such as *bromide of potassium*, *bromide of sodium*, *hydrobromate of quinine*, etc., may be useful; these and similar drugs are recommended as part of the regular treatment of psoriasis by those who hold that the disease is a neurosis. Radcliffe Crocker has found *salicin* very valuable in acute and subacute cases of psoriasis<sup>2</sup>; he begins with 15 grains a day. In chronic cases he has not found the drug of much use. Sea-bathing is often markedly beneficial, doubtless from its tonic action on the general system. I have seen cases that have proved refractory to other treatment quickly get well after a course of sea-bathing. Of the treatment of psoriasis by *large doses of iodide of potassium*, as recommended by Haslund, I cannot speak from personal observation. Whatever good effect it may have is probably to be attributed to the lowering effect of the drug on the general health, which, as already said, is often accompanied by a corresponding subsidence of the disease. Unna has found *naphthalan* to be of the greatest service in cases that have been irritated by unseasonable treatment. *Feeding with extract of thyroid gland*, which was, on its first introduction, vaunted as almost a specific, has not answered the expectations which were formed of it; it sometimes does good, but more often does harm. Even when it is useful, the beneficial effects are not permanent.

<sup>1</sup> *Brit. Journ. Derm.*, July, 1895.

<sup>2</sup> See report of a discussion on the treatment of psoriasis at the Annual Meeting of the British Medical Association, 1902, *Brit. Med. Journ.*, October 25, 1902.



My own experience in this matter is confirmed by that of many other dermatologists. In a case of extensive psoriasis reported by Galloway the lesions disappeared under inoculation with vaccine prepared from the *Staphylococcus aureus* grown from them, but some months later there was recurrence, and under inoculation the patient grew steadily worse, and it was necessary to fall back upon ordinary treatment (soap baths, salicylic acid, and chrysarobin inunctions), in response to which the eruption cleared up until only slight traces remained.<sup>1</sup>

In cases of psoriasis associated with rheumatoid arthritis, arsenic is useful. I give it in Fowler's solution, in the doses already stated. In cases of this nature I have seen good results follow the use of an exclusively meat diet washed down by copious draughts of hot water. As to the mode of action of this treatment, I can only suggest that the simplicity of the diet promotes the functional efficiency of the digestive apparatus, while the large quantity of water increases the action of the kidneys and bowels, and so brings about a complete elimination of waste products.

Passing next to the **local treatment**, the first thing to be done is to remove all scales, so that remedies may be applied directly to the affected part. For this purpose the free application of hot water and soft soap, more or less prolonged immersion in tepid water or an alkaline bath, or inunction with oil or vaseline, will be necessary, in order to soften and loosen the scales. Each patch must be dealt with separately, and the process of clearing the surface must be thoroughly carried out. A useful practical rule is that small patches should be dealt with by strong applications, while large areas require careful handling. *A solution of salicylic acid in spirit, of the strength of 6 per cent.*, well rubbed in, will be found effectual in removing the scales in old

<sup>1</sup> *Brit. Journ. Derm.*, April and Dec., 1907.



patches. When the scales have been entirely got rid of, the next step is to attack the seat of disease with anti-microbic remedies. Although, as already stated, the theory that psoriasis is of microbic origin rests on a very slender foundation, it is a clinical fact that substances which have the property of checking the development of microbes are more useful than any other applications. The particular remedy required in any given case must be judged of by the degree of intensity of the process. As a general rule, it may be laid down that, as in eczema, soothing applications are indicated in acute and stimulating remedies in chronic forms. If hyperæmia is very marked, the surface should be covered with strips of linen steeped in calamine lotion, or smeared with olive oil or cold cream. Alkaline baths (five or six ounces of bicarbonate of soda in thirty gallons of water at a temperature of about 100° F.) often give great relief. In less acute conditions mildly stimulating remedies should be employed. *Mercurial ointments* of moderate strength, the best being *ung. hydrarg. ammon.*, will be found serviceable, but they should be applied only to a limited surface at a time. *Tar* may be applied in the form of *cade oil* or *oleum rusci* or *creoline ointment*, or *liquor picis carbonis* (℥xx to ℥j of water). *Resorcin* (x-xx gr. to ℥j of lard) is a very useful application.

The most rapidly acting and most efficient of all local applications, however, is *chrysarobin*. It may be used in the form of an *ointment* (gr. xv-℥j to ℥j). Unfortunately, there are several disadvantages attending the use of this substance which considerably limit its practical usefulness. If employed without proper precautions, it dyes the skin, the hair, and the nails bright yellow; it discolours linen in the same way, and the stain is not removed by washing, but is changed to purplish brown. A more serious drawback is the irri-

tating effect of the drug on the healthy skin adjoining the diseased area ; it may set up erythema of an acutely inflammatory form, with itching, swelling, etc. For this reason it is chiefly suitable for the limbs and parts of the trunk away from the neck and genitals ; it must never be used on the face or head. In some cases chrysarobin may in this way determine the transformation of psoriasis into pityriasis rubra. The drawbacks attending the use of this powerful agent may be avoided by combining it with *traumaticin*, as suggested by Auspitz. This is made *by dissolving 3j of pure gutta-percha in 3x of chloroform ; to this 3j of chrysarobin is added*. This preparation is, after the removal of the scales, painted over the affected surface, where it forms a thin varnish, which should be renewed every two or three days. Chrysarobin should never be used in cases in which marked hyperæmia is present. It may here be pointed out that Walter G. Smith<sup>1</sup> has shown by experiment that chrysophanic acid is not an efficient substitute for chrysarobin in the treatment of psoriasis. In the case described by Max Joseph (p. 313) the lesions healed under application of Dreuw's ointment (*acid. salicyl. 10, olei rusci, chrysarobini, āā 20, sapon. virid., vaselin flavi, āā 25*), combined with the administration of arsenic internally. *Pyrogallie acid*, used in the form of an ointment (*gr. x to gr. xxx to 3j*), is also often useful, but it must be applied only to a limited area at a time, as toxic effects may be produced by its absorption. Allan Jamieson speaks highly of *pyraloxin*, which is pyrogallie acid modified by exposure to a current of air in presence of ammonia vapour. Achille Brenda<sup>2</sup> records two cases in which patients suffering from psoriasis had succeeded in causing the disappearance of patches by the application of caustics. The agent

<sup>1</sup> *Brit. Journ. Derm.*, vol. viii., July, 1896.

<sup>2</sup> *Giorn. Ital. d. Mal. Ven. e d. Pelle*, 1897, iii.

used in one case was *nitric acid*, in the other a *solution of corrosive sublimate in alcohol* (1·5). Brenda treated cases of his own with nitrate of silver and acetic acid applied on cotton wool. The treatment seemed to be successful, but in one or two cases the application of nitrate of silver was followed by a cheloid condition of the scar. The same author reports a case in which massage of the skin carried out every day for a month cured a case which had resisted other remedies. There is a consensus of opinion that *radiotherapy* causes rapid removal of the lesions, but it appears to be no more successful than the application of ointments in preventing recurrence.<sup>1</sup>

Sulphur baths are often beneficial in chronic cases. The first, and perhaps the chief, effect is the softening and removal of the scales. The practitioner must then judge by the amount of hyperæmia present whether weak or strong local applications are required; if the latter are thought to be indicated, they must at first be used well diluted. The action of sulphur baths on psoriasis is no doubt mainly mechanical by removing the scales, but it is possible also that some further therapeutic effect is produced by the parasitocidal action of the sulphur. The sulphur waters of Harrogate, Strathpeffer, Schinznach, Luchon, Aix-les-Bains and Aachen are especially indicated in cases of chronic psoriasis. The waters of La Bourboule and Levico are also sometimes beneficial, both applied externally and taken internally, owing to the arsenic which they contain. Even the "indifferent" waters of Bath and Buxton often succeed when others have failed. It is important to bear in mind that in chronic cases the patient must be urged to persevere in the treatment, no matter what drug is used. The best security against relapse is

<sup>1</sup> See "Light and X-Ray Treatment of Skin Diseases," by Malcolm Morris and S. Ernest Dore (1907).

the completest possible removal of every vestige of the disease.

In the type of psoriasis in which there is a tendency to the development of pityriasis rubra, chrysarobin and all other local stimulating applications should be at once discontinued. The patient should, if necessary, be kept in bed, and his strength supported by nourishing food and cod-liver oil.

## CHAPTER XV

### PITYRIASIS

THE term "pityriasis" indicates not a disease, but a symptom. It has been used to denote a variety of conditions, differing widely in their origin, course, and termination, but having one objective feature in common, namely, branny desquamation. The scales are small, easily detached, and not heaped up in layers, as is the case in psoriasis. *Pityriasis simplex*, whether on the head, the face, or the trunk, is now recognised to be identical with dry seborrhœa (p. 539); *pityriasis versicolor* is a parasitic disease, sometimes called *tinea versicoloris* (p. 386); *pityriasis rubra*, *pityriasis rubra pilaris*, and *pityriasis rosea* are inflammatory processes of which more or less abundant exfoliation of the epithelium is an essential element. Pityriasis rubra and pityriasis rubra pilaris constitute a class for which the general appellation of "exfoliative dermatitis" would be appropriate. In this category should probably be placed those cases in which the epidermis is periodically "cast," wholly or in part, like a serpent's slough. The most remarkable instance with which I am acquainted is that reported by Sligh.<sup>1</sup> The patient, a man aged thirty-six, is said to have been taken ill with almost unfailing regularity every year since infancy. He complains of "bone ache, weakness, nervousness, and inability to eat"; his temperature rises (101° F.), and he vomits. "Within a few days he has shed his skin from the entire surface

<sup>1</sup> *Internat. Med. Mag.*, June, 1893.





PLATE XVIII.—PITYRIASIS RUBRA.



of his body, including the finger and toe nails. The new skin is as soft and tender as a new-born babe's," but rapidly becomes sound, and in four or five days the man can resume work.

The affection already referred to under the name of desquamative scarlatiniform erythema is a form of exfoliative dermatitis; clinically, however, it is more closely allied to simple inflammation of the skin than to the more formidable diseases that are about to be described.

**Pityriasis rubra** (Plate XVIII.).—Pityriasis rubra is an inflammatory affection of the skin characterised by universal redness of the surface without infiltration or thickening, but accompanied by profuse desquamation. This varies in its character in different parts of the body; for example, it is branny on the head, on the trunk it consists of larger flakes, while from the hands and feet the epithelium is shed in huge scales. The disease used to be considered an affection *sui generis* till Buchanan Baxter<sup>1</sup> showed that while it may occur as an independent disease, it often follows other skin affections.

The onset of pityriasis rubra is usually more or less sudden, and is accompanied by some *malaise*, though not of a very marked character. The eruption is symmetrical in distribution, and may select any part of the skin for its point of attack; most frequently, however, it begins on the limbs and chest. Red patches appear, which spread rapidly at the edge, and coalesce with other patches so as to involve the whole surface of the skin literally from head to foot. The affected skin is uniformly bright scarlet in hue, but quickly becomes covered with thin wafer-like scales which overlap each other like slates on a roof, but are never fused together into crusts. There is very seldom any discharge on the surface of the skin, and when exudation does take place

<sup>1</sup> *Brit. Med. Journ.*, 1879.

the fluid is thin and watery, like sweat (of which, indeed, it chiefly consists), and does not stiffen linen. The scales are easily detached, and when they separate the skin underneath is seen to be intensely red. Although there may be considerable tension, there are usually no fissures. There is, as a rule, no itching; this, however, depends on the temperament of the patient, and in some cases itching is very pronounced. Over the whole surface of the skin an unpleasant feeling of stiffness, heat, and tenderness is often experienced. In my experience a peculiar feature of the disease is that, in spite of the great redness and desquamation, there is no thickening of the skin; on the contrary, there is slight but distinct thinning of the integument, as can be felt on pinching it between the fingers. The disease usually spreads with great rapidity, the whole body being invaded in a few days; sometimes, however, it remains confined to certain regions, and never becomes universal.

Pityriasis rubra may develop as an entirely independent affection, or, as already said, it may be a sequel of some other disease of the skin; in other words, exfoliative dermatitis may be either primary or secondary.<sup>1</sup> In the primary form the eruption first appears as a vivid red blush, which spreads so rapidly that it becomes universal in a few hours. There is no infiltration or thickening of the skin. Desquamation is most abundant, the whole skin seeming to be shed in some cases. The affection is extremely rare; I have seen only three or four cases. The secondary form may start from erythema multiforme, especially when the lesions—

<sup>1</sup> In a series of twenty-one cases published by Stephen Mackenzie (*Brit. Journ. Derm.*, July, 1889) eleven were primary and ten secondary in origin. My own experience, however, is that the latter form is far more frequent than the former. See also Galloway, *Brit. Journ. Derm.*, 1898, p. 448.

such as erythema iris—are definite and characteristic. Gradually one sees the erythematous elements subside or disappear, their places being taken by patches of redness, which spread over the whole body and assume the aspect of pityriasis rubra, as described above. Again, one meets with cases presenting all the characters of typical eczema, with large discharging surfaces and other distinctive lesions, in which a sudden change comes over the face of the disease, the whole skin becoming crimson sometimes in a single night, and all the eczematous appearances fading away, or being swallowed up in pityriasis rubra. Psoriasis, again, with its characteristic lesions in typical positions, may suddenly lose all its distinctive features and become transformed into pityriasis rubra. Lichen ruber planus and dermatitis herpetiformis may undergo a precisely similar metamorphosis. Examples of all these transformations have come under my own notice. The event is probably more frequent after psoriasis than any other affection. Sometimes the transformation is attended with considerable constitutional disturbance, but this is by no means invariable. However it may begin, pityriasis rubra varies in duration and intensity, sometimes not affecting the general health to any appreciable extent, and passing away in a few days or weeks; sometimes lasting for years, and leading to death from exhaustion or some intercurrent disease. In the cases in which recovery takes place relapse is frequent. On the other hand, cases in which the disease has lasted for many years may take a sudden turn for the better and end in recovery; the patient is, however, always liable to subsequent attacks. In primary pityriasis rubra the health is not, as a rule, affected so early as in the secondary form of the affection. The disease is rare in children, but it is much more severe and fatal in them than in adults. It may be remarked

that the mental faculties are sometimes disordered in cases of pityriasis rubra.

A special form of the disease affecting new-born infants has been described by Ritter of Prague,<sup>1</sup> Kaposi, and other observers; but I have never myself seen a case answering to their descriptions, nor, so far as I know, has any such case been reported in England. The affection begins within the first fortnight—seldom beyond the first month—of infancy. The lesions are those of pityriasis rubra, sometimes with the flaccid bullæ of pemphigus foliaceus with crusts and small fissures about the corners of the mouth, the openings of the nostrils, the commissures of the eyelids, and the anus. There is no constitutional disturbance, but in one half of the cases the child dies of marasmus.

What appears to be a contagious form of pityriasis rubra has been described by Savill,<sup>2</sup> 163 cases having occurred in the Paddington Poor-Law Infirmary between July and October, 1891. The eruption appeared in the form of a thickly-set papular rash, with general congestion and thickening of the skin. Vesicles occasionally formed. Independent patches formed in different parts of the body, and in some cases the whole skin became crimson, inflamed, and painful. A sickening odour was perceptible. The epidermis was soon shed in small dry scales, or in large sheets, from the hands and feet. There was great constitutional disturbance, and thirty of the sufferers died from increasing weakness and coma. The disease ran a more or less definite course lasting from seven to eight weeks. The affection was clearly contagious, though its epidemic prevalence is difficult to account for. Similar outbreaks on a smaller scale have been recorded.

The **etiology** of pityriasis rubra is very obscure.

<sup>1</sup> *Vierteljahr. f. Derm. u. Syph.*, 1879, Hft. 1.

<sup>2</sup> *Brit. Journ. Derm.*, Feb. and March, 1892.

The primary form often follows a chill, but in many cases no cause can be discovered. The male sex shows a somewhat greater proclivity than the female, and the disease is more common in middle life than at any other period, though no age is exempt. In the secondary form the cause of the transformation is unknown. In some cases it appears to follow an injury to the skin. Thus, I have known pityriasis rubra develop suddenly after a burn, and spread over the whole body in a single night. In other cases it seems to be the result of the remedies used in the treatment of the pre-existing skin affection. In a healthy girl under my own care for chronic eczema, treatment with chrysarobin was followed by diffuse redness of the skin, which gradually assumed all the characters of pityriasis rubra. The disease has also been known to follow the use of mercury and other drugs. Crocker<sup>1</sup> maintains that there is a close relationship between rheumatism (especially the acute form) and gout and pityriasis rubra, such an association having existed in eleven out of eighteen cases which he had the opportunity of observing. Jadassohn<sup>2</sup> has found tuberculosis (enlargement of the superficial lymphatic glands, and occasionally tubercle of the internal organs) associated with pityriasis rubra in a certain proportion of cases. Even if it be admitted, however, that rheumatism and tuberculosis may be predisposing causes, we are still in the dark as to the factors which determine the onset of the disease. It is possible that the absorption of poisonous products from the previously existing skin lesions might explain the development of secondary exfoliative dermatitis, but I am more inclined to believe that it will be found to be a result of parasitic invasion. Such evidence as

<sup>1</sup> Congrès Internat. de Derm. et de Syph., tenu à Paris en 1889; *Comptes-Rendus*, Paris, 1890, p. 68.

<sup>2</sup> *Arch. f. Derm.*, No. 6, 1891, and Nos. 1, 2, and 3, 1892.

we have on this point, however, is scanty and doubtful. Risien Russell<sup>1</sup> found a diplococcus in the serum and the blood and also in the skin in some of Savill's cases. Petrini de Galatz, however, failed to find micro-organisms either in the scales or in the blood.<sup>2</sup>

The **prognosis** depends chiefly on the extent to which the internal organs, especially the kidneys, are diseased. The presence of albuminuria adds much to the gravity of the outlook. In a considerable proportion of cases pityriasis rubra proves fatal, especially in children; and, however mild the symptoms may be, it is never safe, even if the patient appears to be on the way to recovery, to predict a favourable termination, as at any moment a turn for the worse may occur. Even after complete recovery relapse may take place. In my own experience a fatal result has occurred much more frequently in cases occurring secondarily to a pre-existent skin affection.

**Pathologically**, the process is one of inflammation of the skin, at first superficial, later extending through the whole depth of the integument. The changes found on microscopic examination are simply those characteristic of chronic inflammation, varying in degree according to the length of time the process has lasted. They are present in all the layers of the integument. According to Petrini de Galatz,<sup>3</sup> the essential lesion is in the papillæ. Besides hyperplasia of cells, there is in the earlier stages of the process a proliferation of round cells in the interior of the papillæ, around the vessels and in their walls. A similar proliferation is seen along the vessels of the cutis. This leads to sclerosis of the papillæ, and especially of their vessels, and in time to

<sup>1</sup> *Brit. Journ. Derm.*, April, 1892.

<sup>2</sup> Congrès Internat. de Derm. et de Syph., tenu à Paris en 1889; *Comptes-Rendus*, Paris, 1890, p. 48.

<sup>3</sup> *Loc. cit.*, p. 51.



sclerosis and obliteration of the whole vascular apparatus of the skin, with granular and fatty degeneration of the neighbouring tissues. The glands undergo atrophy, the sebaceous glands apparently becoming transformed into fat. The redness of the skin is due to the stasis of the blood in the vessels, and the ceaseless shedding of the cuticle is an indication of the degree to which the nutrition of the skin is impaired.

As regards **diagnosis**, pityriasis rubra is distinguished from other affections of the skin by (1) the vivid redness of the eruption, (2) its rapidity of diffusion, (3) its universality, (4) the constant and profuse desquamation, and the characteristic papery scales and sheets of epidermis, and (5) its tendency to cause serious impairment of health and even death. From psoriasis it is distinguished by its rapid spread, and the involvement of the whole area of the skin. Lichen ruber planus is seldom universal, and does not spread so rapidly; moreover, it begins in characteristic papules. From eczema, pityriasis rubra is differentiated by the absence of exudation and crusts. From pemphigus foliaceus, which it sometimes resembles in other respects, it can be discriminated by the absence of the loose bullæ and foul-smelling discharge characteristic of that affection. Moreover, the general symptoms are more severe in pemphigus foliaceus than in pityriasis rubra, and the disease is less amenable to treatment.

In the **treatment** of pityriasis rubra the first thing to be done, if the disease is consecutive to some other cutaneous affection, is to discontinue the use of chrysarobin or whatever other drug may seem to be the determining cause of the attack. Every effort must be used to keep the patient's health up to the highest standard. Over-drugging is likely to do great harm. The digestion and bowels must, of course, be carefully attended to; nervous excitement must as far as possible be subdued



by appropriate remedies. If the symptoms are acute, *antimony*, administered in the manner already described, will be found useful. In cases of a chronic type *arsenic* may do good, but it should never be given if the inflammation is at all intense. When the patient suffers from sleeplessness, and the urine is normal, the administration of *opium* is often of great use. Stimulants should be forbidden, unless definitely indicated by weakness of the heart's action. The strength must be maintained by nutritious food, and the least appearance of wasting should be the signal for cod-liver oil. Sufferers from pityriasis rubra are always unduly sensitive to cold, and, indeed, a chill is very likely to aggravate the symptoms during the course of the disease, or to bring on a relapse during convalescence or after recovery. It is of the greatest importance, therefore, that exposure to cold should be most carefully avoided. In severe cases the patient should be kept in bed; even in apparently slight cases he should stay indoors.

Locally, the obvious indications are to soothe irritation, disinfect the skin, and keep the affected parts warm. Tepid bran or alkaline baths are usually comforting. In cases in which the kidneys are sound, I have seen great benefit from the use of prolonged mucilaginous or demulcent baths. Patients are often able to sleep in these baths when they cannot do so in their beds. *Tarry preparations* are especially useful. The *liquor carbonis detergens* freely diluted with water, or very weak *creoline*, or *oil of cade ointment*, may be applied. *Carbolised oil* (1 in 20) is often beneficial, but in using antiseptic applications care must be taken lest irritation be caused. Sir Stephen Mackenzie has got the best results from watery as distinguished from oily applications. His favourite application is a lotion of *glycerine of subacetate of lead* ℥j, *glycerine* ℥j, *water to a pint*. He swathes the patient from head

to foot in a suit of lint and a mask soaked in this lotion. The patient is kept between blankets during the treatment, which is continued till all redness has disappeared. Then greasy applications, such as simple vaseline, are substituted for the lotion. Mercurial preparations should not be employed, as they are likely to aggravate the disease. For protective purposes the skin may be freely dusted with starch and oxide of zinc powder, and then covered with cotton-wool, or it may be wrapped in bandages steeped in calamine liniment.

In the case of infants special precautions must be taken against cold. The skin should be smeared with fatty substances and covered with cotton-wool till the epidermis has been reproduced. Special attention should also be paid to the nourishment of the patient.<sup>1</sup>

**Pityriasis rosea.**—Pityriasis rosea, for the differentiation of which as a substantive disease we are indebted to Gibert,<sup>2</sup> is an inflammatory affection, the essential lesion of which is a pink rash, very slightly raised, and thinly covered with small scales. The eruption appears first as a single patch situated on the trunk, the neck, or the arm.<sup>3</sup> It is oval or circular in shape. Its edges are bright red in colour, somewhat raised, and covered with fine adherent scales; the centre is of a duller red-brownish tint, and slightly depressed. The patch spreads at the edge, fading in the centre as it does so. In a week or so this herald patch is followed by the appearance of a number of small bright red spots, which soon grow into patches. These are of two types: one

<sup>1</sup> For an instructive discussion of the whole subject of ex-foliative dermatitis, in which Walter G. Smith, Stephen Mackenzie, Radcliffe Crocker, F. J. Payne, Colcott Fox, J. G. Pringle, Galloway, and others took part, see *Brit. Journ. Derm.*, Dec., 1898, p. 437 *et seq.*

<sup>2</sup> "Traité Pratique des Maladies de la Peau et de la Syphilis," 1860.

<sup>3</sup> Brocq, *op. cit.*, p. 625.

small, irregular in size, with an indistinct border and a scaly wrinkled surface; the other larger, rounded in outline, with a well-defined border like the herald patch, and standing out among the other patches like medallions (Brocq). Lesions of the former variety are sometimes termed *maculate*, while those of the latter are known as *circinate*. Both forms usually coexist, the circinate lesions being scattered among the others, which are more numerous. As the circinate patches spread at the edge the centre undergoes involution, and rings, red and scaly at the circumference and fawn-coloured in the middle, are formed. In course of time the circle is broken by partial disappearance of the border, and segments remain, which, meeting similar relics of other patches, form wavy lines partly enclosing fawn-coloured areas. As the eruption fades at one spot it comes out at another, and at a given moment all stages of the process may coexist. Itching is not generally troublesome, but, owing to individual differences in the irritability of the skin, this rule is subject to numerous exceptions. The eruption usually first shows itself on the belly, but it may begin on the chest, the face, or the arm. It spreads rapidly, so as often to cover the trunk, the face, and the limbs in two or three weeks. It is generally thickest on the buttocks and abdomen, and it seldom extends below the elbow or the knee. I have, however, seen it in a corn-like form on both palms in a xerodermic patient. Occasionally it is universal. The appearance of the eruption is sometimes preceded or accompanied by constitutional disturbance, which is not, however, severe. The process terminates in spontaneous resolution within a period varying from a fortnight to two months.

Of the **etiology** of pityriasis rosea little can be said. It may occur at any age, but is most common in the young, being generally seen in persons between fifteen

and thirty-five years of age. According to Brocq,<sup>1</sup> it is more common in the female than in the male sex. It is said by some to be more common in spring than at any other season ; of fifty-six cases observed by Moingeard,<sup>2</sup> fifty-three occurred in the period between April and June. Jacquet says it shows a preference for the subjects of dilated stomach, and Brocq believes it to be relatively common in those suffering from syphilis, especially in the early stage. There is some evidence that it is contagious. It has been thought to be due to a specific fungus, the *Microsporon anomæon* (Vidal) ; but the very existence of such an organism lacks confirmation, and in any case its presence on the epidermis would be no proof that it had any causal connection with the disease. As the result of his investigation of pityriasis rosea, all that Sabouraud can say is that it is a polymorphous erythema due to some internal cause of unknown nature.<sup>3</sup>

The **diagnosis** is as a rule easy, owing to the well-marked objective features of the affection. The characteristic single patch which I have called the "herald," the pale red tint, slight scaliness, and want of elevation of the patches, the mingling of maculate and circinate varieties of lesion, and their spontaneous involution, make up a distinct clinical entity which can hardly be mistaken for anything else. From psoriasis, pityriasis rosea is differentiated by (a) its slight scaliness ; (b) the absence of the characteristic hyperæmic spots on the red surface underneath the scales ; (c) its showing no preference for the situations most liable to be attacked by psoriasis. From syphilitic lesions resembling it more or less closely in appearance it can be

<sup>1</sup> Brocq : "La Pratique Dermatologique," vol. iii., p. 903. Paris, 1902.

<sup>2</sup> Quoted by Brocq. *Op. cit.*

<sup>3</sup> *Rev. Prat. d. Mal. Cut., Syph. et Vénér.*, June 1, 1902.

distinguished by the absence of a history of infection and of other concomitant signs of venereal disease. From seborrhœa corporis it is differentiated by (a) the absence of the characteristic initial papules; (b) its distribution, seborrhœa corporis affecting almost exclusively the middle of the chest and back, and avoiding the limbs; and (c) the fact that it disappears spontaneously in a few weeks, while seborrhœa corporis, if untreated, will last for years. From tinea circinata, pityriasis rosea is distinguishable (a) by the large number and wide distribution of the lesions; and (b) by the absence of the tricophyton, which is the cause of the former.

The **prognosis** of pityriasis rosea is always favourable, spontaneous resolution, as already stated, taking place in a few weeks.

In the way of **treatment**, all that is required is to soothe any irritation that may exist. For this purpose a weak lotion of *liquor picis carbonis*, or any of the anti-pruritic remedies already mentioned, may be employed. If the eruption is very extensive, a tepid bran or alkaline bath will be useful. Allan Jamieson recommends that the patient be soaked daily for half an hour in a bath to which two or three teaspoonfuls of Condyl's fluid have been added, and that then vaseline with salicylic acid be applied freely to the skin. Dr. Montgomery, of San Francisco, speaks well of this treatment.<sup>1</sup> No internal medication is necessary.

<sup>1</sup> *Trans. Amer. Derm. Assoc.*, 1905, p. 196.

## CHAPTER XVI

### LOCAL INOCULABLE DISEASES

THIS group of skin affections includes a number of widely different conditions which have this one feature in common, that the exciting cause of the disease is implanted in the integument from without, and there under favourable conditions reproduces itself and gives rise to local lesions without causing systemic infection. The agents which excite the disease are of parasitic nature—that is to say, they are organisms that live at the expense of their involuntary host. They may conveniently be divided into (a) animal parasites, (b) vegetable parasites, and (c) various micro-organisms. In some of the affections described in the present chapter the exciting cause of disease is inoculable into the epidermis, in others into the true skin. The former will be dealt with first.

#### I.—ANIMAL PARASITES.

A formidable list of the animal parasites that infest the human skin is given by Gebor<sup>1</sup>; of these, only the more common need be mentioned here. He divides the parasites into three classes: (1) Those (called by him “stationary”) whose habitat is almost exclusively the human skin—including the *Sarcoptes scabiei hominis* or itch-mite, the pediculus or common louse in its three varieties, (a) head, (b) body (or more properly, clothes), and (c) pubic or crab-louse; *Pulex irritans* or common

<sup>1</sup> Ziemssen's “Handbook of Skin Diseases.”



flea ; *Demodex* or *Acarus folliculorum hominis* (Fig. 5, c). (2) Temporary or occasional parasites, which may be present either (a) in a sexually mature or (b) in a larval condition. Among the former may be mentioned *Cimex lectularius* or bed bug ; *Dermanyssus avium* or bird-mite ; tabanidæ or house-flies, etc. ; among the latter, cestodes, such as *Cysticercus cellulosæ* and echinococcus or bladder-worm ; trematodes, such as *Distoma hepaticum* or liver-fluke ; nematodes, such as *Filaria medinensis* (Fig. 5, g), *Filaria sanguinis hominis* (Fig. 5, h), *Oxyuris vermicularis* ; and various flies (muscidæ) such as *Musca domestica*, *M. cadaverina*, *M. vomitaria*, etc. (3) Accidental parasites, of which the most familiar is *Leptus autumnalis* or harvest bug.

**Scabies** is an affection produced by the presence of the *Acarus* or *Sarcoptes scabiei* in the epidermis. It gives rise to lesions of an inflammatory nature, caused by the irritation of the parasite, together with others due to scratching. The female is the exciting agent in the initiation of the process, the function of the male being limited to the impregnation of his mate. When this has been accomplished the female penetrates into the deeper layers of the epidermis, where she deposits her ova. She first passes downwards through the horny layer, and then by a wriggling movement pushes her way below the horny layer. In this manner she makes a tortuous burrow, the direction of which is indicated on the surface by a rough line formed by the upheaval of the horny layer. At the point where she *first* enters the epidermis there is usually a vesicle which marks the situation of the mouth of the burrow. The average length of the burrow is from one-eighth to half an inch, but it may be a good deal longer. At different stages in the excavation of the burrow the acarus deposits an ovum, and also excremental matter. The acarus is always found at the blind end of the burrow. She lives



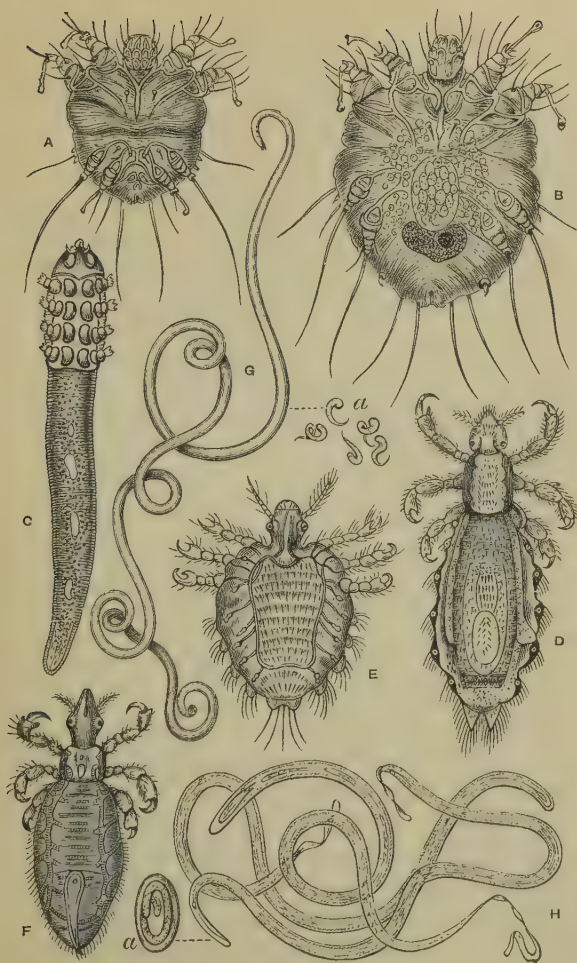


Fig. 5—Animal Parasites.

- A. *Acarus scabiei* (male),  $\times 100$  (Kaposi). B. *Acarus scabiei* (female  $\times 100$ . C. *Demodex folliculorum*,  $\times 250$  (Küchenmeister). D. *Pediculus corporis* (female),  $\times 50$  (Küchenmeister). E. *Pediculus pubis*,  $\times 35$  (Küchenmeister). F. *Pediculus capitis* (male),  $\times 35$  (Küchenmeister). G. *Dracunculus medinensis*, half natural size, with larvæ (a),  $\times 30$  (Cobbold). H. *Filaria sanguinis hominis*,  $\times 250$  (Lewis); with ovum (a Cobbold).

as a rule about two months, during which she deposits some fifty ova, then dies. The ova are hatched in a week to a fortnight, the oldest, which are, of course, the most superficial, coming first to the surface, aided by the natural exfoliation of the older epidermis.

The burrows that have been described are the characteristic lesions of scabies, and the most common situations for them are the parts where the skin is least thick, namely, the webs between the fingers and toes (especially in infants), the fronts of the wrists, inside the umbilicus, the penis and other parts of the genitals, the breasts in women; occasionally, though rarely except in very uncleanly people, they may be seen in other parts, but the head and face are never attacked except in children in arms, where, for obvious reasons, these parts are much exposed to contagion. The burrows can generally be found without difficulty in persons who are not too particular in their ablutions, the rough line marking the track being blackened by dirt; in other cases the little vesicle at the entrance will indicate their position. In cleanly people they are often by no means easy to find, the line marking their course being ill defined. There are also certain periods in the disease when burrows are not present, namely, at the very beginning, when the *acarus* has only just penetrated the epidermis and has had no time to burrow, and later, when the burrows have been laid open and destroyed by scratching or treatment.

The secondary lesions are the results of inflammatory reaction, intensified by scratching and complicated by inoculation with *pus cocci*. The eruption is first vesicular; later, pustules and sometimes bullæ become developed. The distinctive feature of the lesions is that they are not grouped as in eczema, which they otherwise often resemble, but are isolated and irregularly scattered about. The marks of scratching are seen in all

parts of the body which can easily be got at by the patient's fingers. In men they are chiefly seen on the front of the body from the nipple to the knees; posteriorly they are almost exclusively on the buttocks. In women and children they are also visible on the lower part of the back. The eruption is usually most marked in parts subjected to friction, and over the ischial tuberosities in those whose occupation makes it necessary for them to sit long on hard seats. The eruption of scabies, therefore, presents a very pronounced multiformity of aspect. Burrows, vesicles, bullæ, pustules, are mingled in the most irregular manner with the marks of finger-nails and the results of secondary inoculations in the form of ecthymatous or impetiginous eruptions in various stages of development, and of destruction by scratching (ruptured vesicles and bullæ, pustules laid open and discharging or covered with scabs, hæmorrhagic points, etc.). The secondary lesions are sometimes so severe as to disguise the real nature of the affection. This is rare in England, but is frequent in Norway and some other places.

The most marked subjective symptom is itching, which is usually extremely troublesome, especially at night. As in other conditions, however, it varies in degree according to the temperament of the patient, some persons being the subjects of itch for weeks or months without being conscious of any particular irritation of the skin, others being driven almost frantic by it from the first. Irritation is not unfrequently felt in places distant from the seat of the disease: thus, having once inoculated myself experimentally on the arm, I felt little or no itching at the site of inoculation, but after a time I became aware of intense itching at the back of the shoulder. This reflex irritation may give rise to a sympathetic eruption in distant parts, as is observed in urticaria; and when the characteristic

burrows are not readily discoverable, this may be very misleading. When the burrows have been destroyed, the itching and the other symptoms usually subside ; sometimes, however, the lesions may persist for a long time, and in persons with an exceptionally irritable skin may be the starting-point of eczema and other troubles.

The disease is communicated by contact, but it is probable that this must be intimate and prolonged to take effect. Want of cleanliness is a predisposing cause, but persons of all kinds are liable to attack.

The **pathology** of scabies is that of urticarial dermatitis, with the usual secondary lesions caused by scratching and inoculation with inflammatory products. The acarus, which is the cause of the disease, belongs to the tracheal order of the Arachnidæ. The female (Fig. 5, B), which can just be seen with the naked eye, has a white roundish body with eight conical legs ; to each of the forelegs is attached a sucker, to each of the hinder ones a bristle. She burrows into the epidermis with her head, the back part of the body being tilted upwards. The male (Fig. 5, A) is about two-thirds the size of the female, and has a sucker on the posterior pair of legs.

In a well-marked case of scabies the **diagnosis** is easy, the characteristic burrows between the fingers and on the wrists being conclusive. As already said, the mouth of the burrow is usually marked by a vesicle, and in searching for the parasite the farther end of the passage away from the vesicle must be sought for. The following is the method of procedure most likely to be successful. A pin is laid on the surface of the epidermis, not point downward, but on the flat ; it should then be pushed into the epidermis, at the end of the burrow away from the vesicle, with a rotatory movement, great care being taken not to draw blood. If the acarus is alive it will cling to the end of the pin, where it can be

seen as a minute pearly object. It can then be mounted in glycerine and examined microscopically. When no burrows are to be seen, the diagnosis must chiefly rest on the distribution, and especially on the irregularity of the lesions. A pustular eruption on the hands should always excite suspicion ; the distribution of the marks of scratching is a further guide to the nature of the affection, and any history of a similar affection in the same house is an important link in the evidence.

The **prognosis** is always good as regards recovery, if proper treatment is submitted to ; but, as already said, scabies may in certain persons be the starting-point of some other affection of the skin.

The points to be aimed at in the **treatment** of scabies are (1) the breaking up of the burrows ; (2) the destruction of the parasites ; (3) the relief of the subjective symptoms ; and (4) the prevention or cure of secondary lesions caused by pus cocci, etc. The quickness of the cure depends on the thoroughness of the treatment. The patient should be stripped, and the affected parts soaked with hot water and vigorously scrubbed with soft soap ; this will remove the superficial layers of the epidermis, and lay open the burrows. The next step is the application of parasitocidal agents in the form of a thickish ointment, or, better still, a paste, which should be thoroughly rubbed in and plastered over the affected parts, so as to fill every nook and cranny of the burrows. The usual application is simple *sulphur ointment* (℞ss to ʒj) ; the sulphur ointment of the Pharmacopœia is unnecessarily strong, and should always be diluted. The application should be renewed every few hours for two or three days, the patient meanwhile wearing old undergarments. The treatment should be brought to a close with a cleansing bath. An essential point is the disinfection of the patient's clothes by boiling or fumigation with sulphur.

At the St. Louis Hospital, in Paris, the favourite remedy is an ointment consisting of *potass. carbonat.* ʒj; *sulph. sublim.* ʒij, in an ounce and a half of lard. Soft soap is first rubbed in for half an hour, then the patient remains in a hot bath for half an hour; the ointment is next thoroughly rubbed in, the patient resumes his clothes without washing off the ointment, and is usually cured. Another very effective ointment, recommended for cases in which there is much inflammation of the skin, is composed of *sulph. sublimat.*, *olei codini*, āā ʒij, *cret. preparat.*, ʒijss, *saponis viridis* and *adipis*, āā ʒj. If this application produces too severe a reaction, an ointment may be used consisting of *styracis liquidæ*, *sulph. sublimat.*, āā ʒj, *adipis purificat.* ʒj. A still milder ointment, which has little odour, and is white, is *naphthol* ʒss, *cret. preparat.* ʒiiij, *saponis virid.* ʒiss, *adipis purific.* ʒiiij. Max Joseph uses Kaposi's ointment, consisting of *B-naphthol*, *cretæ albæ*, āā 10, *saponis viridis* 50, *axungię porci* 100. In cases in which this fails he employs Hebra's modification of Wilkinson's ointment: *Florum sulphuris*, *olei fagi*, *saponis viridis*, āā 40, *axungię porci*, *pulv. cretæ albæ*, āā 80. When time is a matter of vital importance the first and second indications in the treatment of scabies may be fulfilled by one remedy—namely, the application of *Vlemingkx's lotion*, which consists of *quicklime* ʒij, *sulphur* ʒiv, and *water* ʒxx. The ingredients should be boiled in an iron vessel, and stirred with a wooden spatula to perfect union. The quicklime causes exfoliation of the epidermis, and gives the sulphur free access to the burrows. Medicated soaps—such as the *sulphur precipitate soap*, 10 per cent., prepared according to Buzzi's directions<sup>1</sup>—are also useful. *Balsam of Peru* is now frequently used instead of sulphur, and is especially suitable in cases in which there is exceptional sensitiveness of the skin or a predisposition

<sup>1</sup> *Ergänzungsheft 2: Monats. f. prakt. Derm.*, 1891.



to eczema. It is more rapidly fatal to the itch-mite than sulphur. It is painted over the whole surface of the body and allowed to remain on overnight, or longer if necessary. *Peruol*, an extract prepared from the balsam, is without the offensive smell of the latter drug ; Juliusberg uses a 25 per cent. solution in olive oil. For infants and persons with a delicate skin, *stavesacre*, or weak *balsam of Peru ointment*, is very useful.

A word of caution may be added as to the way in which the mechanical and parasitocidal applications are made. Vigour must not be pushed to the length of violence, nor is it necessary to stir up acute inflammation of the skin in order to kill the parasites. On the other hand, the mere smearing on of a little sulphur ointment is of no use. For the relief of the subjective symptoms soothing applications, such as calamine lotion, alkaline baths, etc., and antipruritic remedies, such as carbolic or menthol soap, or any of the remedies recommended for pruriginous conditions, should be employed. The patient should be warned that itching sensations may continue for some time after the disease is cured. Secondary inflammatory or suppurative lesions should be treated with antiseptic applications, such as boric acid lotion or liquor carbonis detergens.

In some cases the secondary lesions in scabies are of such a degree of severity that the application of the ordinary parasitocidal substances is out of the question. In these cases the practitioner must first endeavour to subdue the inflammatory symptoms, and then cautiously feel his way towards the radical treatment of the disease by the graduated use of parasitocides, the effect of which should be carefully watched.

**Pediculosis** is the presence of lice on the head, about the body, and among the pubic hairs. The parasites infesting these several localities differ somewhat in size and form. The body-louse is the longest,



the crab- the widest, the head-louse being midway between the other two in both dimensions. The head-louse (Fig. 5, F) has a triangular head, and varies in colour according to that of the skin which it feeds on, being grey with black margins on the European, yellowish-brown on the Chinaman, white on the Eskimo, and black on the negro. The female is larger and more numerous than the male; each one lays from fifty to sixty eggs, so that multiplication is very rapid. The body-louse (Fig. 5, D), besides being larger than the head-louse, has a more oval head and more developed legs, and is more active; it is dirty-white in colour, with black margins. The crab-louse (Fig. 5, E) is broader and flatter than either of the others; it is yellowish-brown in colour, and has a rounded head with five prominent antennæ; the female lays from ten to fifteen eggs, which hatch out in a week, the young being sexually mature in a fortnight. Pediculi deposit their ova on the hairs, one ovum or nit being usually attached to a single hair; occasionally there are several. They are attached to the side of the hair by a glutinous material which binds them so firmly that they can be separated from the hair only by dissolving the cement with acetic acid.

All three species of lice cause similar lesions, modified by peculiarities of situation. The primary lesion is a wound inflicted by the parasite in feeding; possibly also a minute quantity of some poisonous secretion is inoculated at the same time. The process of feeding is effected by the insertion into the opening of a sweat duct of a membranous tube through which the blood is sucked up. When the louse has satisfied its appetite it extracts the sucker, and the blood welling up in the duct forms a minute red speck on the surface. This hæmorrhagic speck, which can be seen but cannot be felt, is, as was first pointed out by Tilbury Fox, the

characteristic lesion of pediculosis, and its presence is conclusive evidence of the nature of the affection. There are no other lesions on the skin beyond such as are caused by scratching—erythematous red lines parallel to each other and marking the track of the finger-nails, hæmorrhages, excoriations, wheals, and impetiginous pustules. When the top of a congested papilla has been scratched off, a tiny blood-crust is often left; this is common in all conditions that are accompanied by scratching, and is distinguished from the hæmorrhagic speck characteristic of pediculosis by the fact that it can be felt as well as seen. Persistent scratching may result in the production of a peculiar leathery thickening of the skin with pigmentation—the so-called “vagabond’s skin.” Among the rarer symptoms of pediculosis may be mentioned pyrexia, which is believed by Jamieson<sup>1</sup> to arise reflexly from cutaneous irritation; Payne,<sup>2</sup> however, looks upon it as the result of a kind of poisoning.

The *Pediculus capitis* is common in children whose heads are neglected, though it frequently attacks cleanly children and adults. It chiefly affects the occipital region, where the hair is thickest, and it gives rise to itching all over the scalp. In the healthy the scratching only causes excoriation, but in ill-nourished children a suppurative process is pretty sure to supervene from inoculation by pus cocci. Sometimes the occipital and other neighbouring glands become enlarged and inflamed, and abscesses may form. In very dirty persons

<sup>1</sup> *Brit. Journ. Derm.*, vol. i., 1888-89, p. 321 *et seq.* A case is cited in which a healthy lad, aged nineteen, was on two distinct occasions admitted into the Edinburgh Royal Infirmary with a very high temperature (106·2° on one occasion, 106·4° on the other), which immediately fell to normal when he was freed by a bath and a change of linen from the innumerable pediculi with which he was infested.

<sup>2</sup> *Ibid.*, 1890, p. 209.

a peculiar condition known as *plica polonica*, is produced by the matting together of the hair with pus, nits, scales, and scabs and miscellaneous filth.

It is hardly necessary to say that pediculi never originate by spontaneous generation, as many unscientific persons believe, but are always communicated by one host to another, either by direct contact, or by the medium of brushes, towels, etc.

When itching of the scalp is complained of, and especially if impetigo contagiosa be present, and there are enlarged glands in the neck, the occipital region should be carefully explored for nits. Impetigo contagiosa alone, however, is not enough to found a diagnosis of lice upon, as there are many other conditions with which that affection is associated.

The **treatment** is to destroy the parasites and induce healing of the secondary lesions by means of antiseptic remedies. If the patient is a child, the hair should be cut short and *white precipitate ointment* applied. In women the hair need not be sacrificed; the lice can be killed by thoroughly smearing the scalp with the same preparation. The most difficult part of the treatment is to get rid of nits. For this purpose the hair should be thoroughly wetted with *acetic acid*, which dissolves the glutinous material fixing the ovum to the hair, and then carefully combed out. The process should be repeated as often as may be necessary. *A mixture of ether ʒj and oleate of mercury (5 per cent.) ʒj* is an effective application for the destruction of pediculi and their ova, or the hair may be soaked with petroleum. The crusts should then be detached by softening with carbolised oil, and the impetigo contagiosa treated with weak mercurial or strong boric acid lotions.

*Pediculus corporis* inhabits the clothes rather than the skin. The patient, who is generally an elderly person in low condition and regardless of cleanliness,

complains of irritation, especially about the shoulders, on the back, and on the extensor surfaces of the limbs, but not on the hands or feet. When the clothing is removed there is generally little or nothing to be seen beyond the results of scratching—namely, long lines torn by the finger-nails, with here and there wheals, but as a rule no vesicles or other definite lesions. On examination with a lens, the characteristic hæmorrhagic specks can be made out. No pediculi will be found on the skin, but on searching the clothes, particularly the folds of the under-linen, they will usually be discovered, unless, as often happens, the patient has taken the precaution to change his clothes before presenting himself for inspection. A favourite hunting-ground of the body-louse is the shirt-collar on its internal aspect. So partial is the parasite to this part that signs of severe scratching about the back of the neck and the shoulders in an elderly person of doubtful cleanliness are almost conclusive evidence of the presence of lice. It is in tramps and other persons infested with body-lice that the “vagabond’s skin” already mentioned is most frequently seen.

The diagnosis rests, in the absence of visible parasites, on the presence of the characteristic hæmorrhagic specks on the neck and shoulders. From scabies the affection is distinguished by there being no lesions on the hands or wrists.

The **treatment** is to kill the parasites by thorough disinfection of the clothes which are their habitat. For this purpose the most effectual method is baking in a disinfecting oven at a temperature of  $212^{\circ}$  or more. The patient himself may with advantage take alkaline or ordinary hot baths, and the free use of some medicated antiseptic soap will be a most useful adjunct.

*Pediculus pubis* chiefly lives among the pubic hairs, but occasionally extends its depredations to the abdo-

men, thorax, axillæ, and occasionally even to the eye-lashes, whiskers, and beard. The only subjective symptom is itching. Papules (the tops of which are generally scratched off) are the usual lesions, but sometimes more or less severe eczematous inflammation is induced. A characteristic lesion produced by crab-lice, according to Mourson and Duguet, is a peculiar steel-grey pigmentation which appears in spots about the size of the finger-nail (*maculæ cæruleæ*). The colour of these blue spots corresponds with that of a pigment contained in the thorax of the parasite, and is thought to be inserted by it through its sucker into the epidermic tissues. The stains fade when the pediculi have been destroyed.

The parasite is usually communicated during sexual intercourse; sometimes also by clothes, etc. The most cleanly people are liable to be affected if they put themselves in the way of becoming the hosts of the lice.

Itching in the pubic region should always excite suspicion of the presence of crab-lice. The diagnosis is made by actual inspection and discovery of the offending agent.

The **treatment** should be on the same lines as that recommended for head-lice, but the pubic hair should not be cut. *White precipitate ointment* is an excellent remedy. *Oleate of mercury* (5 per cent.) ʒvj, *æther. sulph.* ʒij, kills the pediculi and destroys the nits. After the parasitidal remedy has done its work some calamine or other soothing lotion should be applied.

**Miscellaneous parasites.**—Among the other parasites which ordinarily infest the human skin are the common flea, the common bed bug, and the harvest bug. In tropical climates the chigoe or jigger is a source of considerable annoyance, and the guinea-worm is often a cause of much suffering and serious or even fatal disease.

The *flea* makes a characteristic lesion, consisting of a small red spot with a central point of darker hue. Older spots become petechial, and sometimes in patients suffering from fever may be mistaken for the exanthem of typhoid or measles, or for purpura. The marks on the linen and the presence of recent spots will enable the observer to come to a correct conclusion.

The *bug* produces a wheal with a whitish centre and a central punctum resembling that made by the flea. Great irritation and hyperæmia are usually caused by bugs, which excite artificial congestion by injecting an irritant substance so as to increase the supply of blood available for sucking. The irritation may be removed by the application of linen soaked in *eau de Cologne*, *toilet vinegar*, *lead lotion*, strong ammonia, "Eau de Luce" (Tr. Ammon. Co.) being the most effective. Saturated solutions of soda or boric acid applied hot give great relief if the bites are extensive.

The bites and stings of *gnats*, *mosquitoes*, and similar pests raise wheals, often with a vesicle in the centre, and usually accompanied by excessive itching. The remedies recommended for bug bites will be equally useful for these.

The *harvest bug* is active in July and August amongst those who work in the fields. It produces bright red papules and wheals, generally on the ankles and legs, but often on other parts of the body. The itching is very troublesome, and scratching may cause secondary lesions of the usual kind. The treatment consists in the application of parasitocides such as *naphthol* or *weak mercurial ointment*.

The *chigoe*, or *jigger*, a sand-flea (*Dermatophilus penetrans*), not unlike the common flea (*Pulex irritans*), is found in tropical countries, and is very prevalent on the East Coast of Africa among the coolies, by whom it has been introduced into India. The animal bores



into the skin, and there gives rise to suppuration and ulceration. The best treatment is to extract it with a needle.

The *guinea-worm* or *Dracunculus medinensis* (Fig. 5, G) is a parasite which in tropical countries is supposed to gain admission to the body through the medium of water by drinking. I have seen but one case. The patient was a lady who had recently returned from India, the only symptom being one large bulla on the instep. I was able to prove the diagnosis and effect a cure by opening the bulla and winding out the worm on a match, a process which took twelve days: Emly, a French naval surgeon, has introduced a more expeditious method of extracting the worm by injecting it, if it protrudes, with a solution of bichloride of mercury, and so destroying it, extraction being, as a rule, easily effected after an interval of twenty-four hours. In the absence of protrusion he injects the solution as near the coiled-up parasite as possible; when the worm is thus killed, it may be cut down upon and extracted, or left to be absorbed. The parasite has been more frequently observed in England of late years. An interesting case has been reported by Patrick Manson and Boyd.<sup>1</sup> For a full account of the worm and the symptoms produced by it the reader is referred to Cobbold's book on "Parasites."

*Craw-craw* is a disease that occurs on the West Coast of Africa; it appears to be caused by a filarial organism.

The *velde* sore of South Africa, from which so many of the troops suffered during the war and after their return home, has resemblances to *craw-craw*; but the most constant bacteriological feature of this affection is a diplococcus which Harman,<sup>2</sup> who inoculated himself with it, considers to be a special organism (*Micro-*

<sup>1</sup> *Brit. Journ. Derm.*, vol. viii., 1895, p. 37.

<sup>2</sup> *Journ. of Path. and Bact.*, vol. ix., No. 1, Aug., 1903.



*coccus vesicans*), and not simply an attenuated form of the *Staphylococcus pyogenes aureus*. The tissue changes, this observer believes, "are those assignable to an irritant working primarily within the epidermis, in the stratum lucidum; the irritation is not severe, but of sufficient strength to cause destruction of epithelial cells and vesication." The sore sometimes follows insect bites or exposure to the sun's rays, but is more often a sequela of abrasions. It mostly affects the extensor surface of the upper limbs, from elbow to digits: First there is a small blister or group of blisters, which break and lead to the formation of an ulcer that may remain open for months and is liable to exude pus as the result of secondary pyogenic infection. When the sore heals there is little destruction of skin. Treatment consists in removing the superficial epidermis for a considerable distance beyond the sore, rubbing the ulcer-surface with lint soaked in a 1 in 1,000 solution of perchloride of mercury, and dressing it with the same solution:

*Echinococcus hydatid*, embryos of the *Distoma hepaticum*, and ova of *Bilharzia hæmatobia* (*Schistosomum hæmatobium*) have also been found in rare instances in the human skin, and *Cysticercus cellulosæ cutis* is sometimes present in the subcutaneous tissue.

Eruptions are sometimes caused by the infection of the skin by larvæ of certain members of the Arachnida, and by dipterous larvæ.<sup>1</sup>

<sup>1</sup> For fuller information on these eruptions see Dr. Robert Lee (*Clin. Soc. Trans.*, vols. viii. and xvii.), Larva migrans (Crocker), a review (*Brit. Journ. Derm.*, vol. viii., p. 145), Lenglet and Delaunay (*Ann. de Derm. et de Syph.*, Feb., 1904), and Stelwagon (*Journ. Cut. Dis., including Syph.*, Aug., 1904); Dr. P. Abraham, Remarks on Cutaneous Myriasis due to *Cestridian* Larvæ (*Trans. Derm. Soc. Great Brit. and Ireland*, vol. iii., p. 62; *Brit. Journ. Derm.*, vol. ix., p. 37); and Dr. C. V. Samson, Himmelstjerna (*Arch. f. Derm. u. Syph.*, Bd. xiii., p. 367).

## CHAPTER XVII

### LOCAL INOCULABLE DISEASES (*continued*)

#### II.—VEGETABLE PARASITES

THIS group includes all the affections of the skin in which the process is set up by the growth of a fungus in the epidermis. The fungi are the *Trichophyta* and *Microsporon Audouini* (causing ringworm); the *Achorion Schoenleinii* (causing favus); the *Microsporon furfur* (causing tinea versicolor); the *Microsporon minutissimum* (causing erythrasma); the *Actinomyces* or ray fungus (causing actinomycosis); the *Tinea imbricata* (causing Tokelau ringworm); *Discomyces* and *Aspergillus* (causing the different varieties of mycetoma); and an unnamed fungus, which is believed to cause *pinta*, a disease endemic in some parts of South America.

**Ringworm** may attack the hair, the skin, or the nails, and rarely the mucous membrane. On the skin the process is everywhere essentially the same, consisting in the immediate inflammatory reaction excited by the growth of the fungus, to which the results of secondary inoculation with pus cocci are generally superadded. The appearance and evolution of the lesions are, however, so much modified by the structural peculiarities of the parts on which they are situated that clinically two distinct varieties are recognised, according as the disease affects hairy or hairless parts. Ringworm of the hairy parts is naturally subdivided into ringworm of the scalp (*tinea tonsurans*) and ringworm of the beard (*tinea barbæ*, *tinea sycosis*). A rare form of ringworm, *tinea palpebralis*, which attacks the eyebrow, belongs,

strictly speaking, to this category, but is generally classed with the following group. Ringworm of the hairless parts comprises ringworm of the body (*tinea circinata*), ringworm of the nails (*onychomycosis*), and ringworm of the mucous membrane (mouth, vulva). In addition to these, there is a special form of ringworm, occurring mostly in tropical climates, which attacks the inguinal, perineal, and gluteal regions; this generally goes by the name of *eczema marginatum*, but would be more appropriately called *tinea marginata*.

That a cryptogamic fungus is associated with ringworm was shown by Gruby,<sup>1</sup> of Paris, in 1843, and independently by Malmsten,<sup>2</sup> of Stockholm, in 1844. The latter named the fungus *Trichophyton tonsurans*.

Till comparatively recently dermatologists believed that all forms of ringworm were caused by one and the same fungus. In 1891 it was suggested by Furthmann and Neebe<sup>3</sup> that more than one species of parasite might be concerned in the production of the disease. Soon afterwards the doctrine of the plurality of the ringworm fungi was definitely formulated by Sabouraud,<sup>4</sup> whose researches threw an altogether new light on the subject.

Careful naked-eye inspection of a large number of *untreated* cases of ringworm showed, according to Sabouraud, that they are divisible into three classes: One, in which the hairs for two or three millimetres beyond the level of the skin are covered with a scaly sheath, which looks like a prolongation of the epidermic

<sup>1</sup> *Comptes-Rendus de l'Académie des Sciences*, Paris, 1842, 1843.

<sup>2</sup> *Müller's Arch.*, 1848.

<sup>3</sup> *Monats. f. prakt. Derm.*, 1891, No. 11.

<sup>4</sup> *Ann. de Derm.*, Nov., 1892; "Les Trichophyties Humaines," Paris, 1894; International Congress of Dermatology, London, 1896.

lining of the follicle ; the affected patch is strewn with greyish scales. (2) A second, in which the hairs are broken off short and present no trace of a sheath, while the affected patch is free from scales. (3) A third, in which not only the hair but the epidermis is affected. The hair has a sheath, but this does not extend beyond the buried part, and thus is seen only on the epilated hairs ; the epidermis is the seat of inflammatory and suppurative lesions (impetigo, folliculitis, kerion).

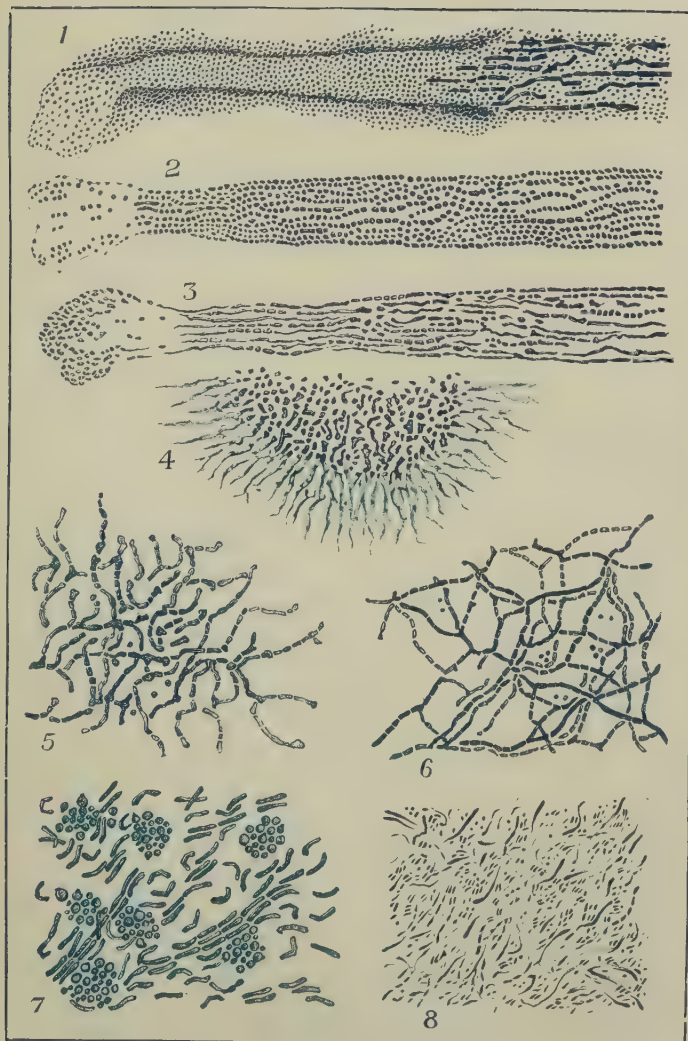
In the first of these groups, on microscopic examination, the scaly sheath is seen to be formed of very small spores irregularly scattered like the stones in a mosaic ; the parasite lies *around* the hair. In the second group the fungus lies altogether *within* the hair, the spores are considerably larger than those in the first group, and they are arranged in regular chains. In the third group the deeper portion of the hair is seen to consist of spores, also relatively large and arranged in regular chains ; but the fungus lies *outside* the hair, between the dermic portion of the shaft and the wall of the follicle. To the small-spored fungus Sabouraud gives the name of *Microsporon Audouini*, while the other two he calls *Trichophyton megalosporon*, *endothrix* or *ectothrix*, according as the fungus lies inside or outside the hair. The results of cultivation on various media are held by Sabouraud to prove that human ringworms which used to be looked upon as one disease caused by one specific fungus, the trichophyton, are separable into two distinct pathological entities : one caused by a small-spored parasite, the *Microsporon Audouini* (see page 363) ; the other by a large-spored fungus, the trichophyton ; and further, that true trichophytosis may be caused by a great number of different species of the same parasite family.

As regards the origin of the fungus, Sabouraud

PLATE XIX.

- FIG. 1.—SMALL-SPORED RINGWORM (HAIR).  
FIG. 2.—LARGE-SPORED RINGWORM (HAIR).  
FIG. 3.—FUNGUS OF FAVUS, ACHORION SCHOENLEINII (HAIR)  
FIG. 4.—SCUTULUM OF FAVUS, SHOWING FUNGUS.  
FIG. 5.—FUNGUS OF TINEA CIRCINATA.  
FIG. 6.—TINEA IMBRICATA.  
FIG. 7.—MICROSPORON FURFUR, FUNGUS OF TINEA VERSI-  
COLOR.  
FIG. 8.—MICROSPORON MINUTISSIMUM, FUNGUS OF ERY-  
THRASMA.









satisfied himself that certain species of trichophyta of the "ectothrix" type are transmitted to human beings from animals—horse, cat, dog, etc.—on which the parasite finds a soil suitable for its growth.

Bodin<sup>1</sup> found on the horse a parasite very closely allied to the small-spored fungus, and Sabouraud also describes two varieties of the microsporon in the horse and one in the dog, besides the human species.

As regards the trichophytes, Bodin agrees with Sabouraud that the characteristic of those of animal origin is that they are situated outside the hair (ectothrix); on the other hand, in human trichophytoses the parasite is exclusively endothrix, and never invades the follicle. The word "ectothrix," however, merely denotes that the parasite is situated in the follicle outside the hair, but does not mean that parasitic elements do not at the same time find their way into its substance. The special character of all trichophytes of animal origin is to be "endo-ectothrix" in situation, and to have irregular spores. The clinical characteristic of human trichophytoses of equine origin is that they cause a deep lesion in the form of suppurating folliculitis, rapid in evolution, and tending to cause scars.

Sabouraud's doctrine has been accepted in Great Britain by Jamieson,<sup>2</sup> Adamson,<sup>3</sup> and, with certain differences on minor points, by Colcott Fox and Blaxall.<sup>4</sup> The two latter observers were the first to maintain (1896) that there were several distinct forms of the *Microsporon Audouini*, and in 1907 Sabouraud succeeded in isolating three new species with typical cultures—*Microsporon*

<sup>1</sup> "Les Teignes Tondantes du Cheval et leurs Inoculations Humaines." Thèse de Paris, 1896.

<sup>2</sup> *Brit. Med. Journ.*, Aug. 20, 1893, p. 470.

<sup>3</sup> *Brit. Journ. Derm.*, July and Aug. 1, 1895.

<sup>4</sup> *Ibid.*, July, 1896.

*lanosum*, *M. umbonatum*, and *M. velveticum*. The second and third species, he holds, are rare, but the first is said to be the cause of one-third of the cases of small-spored ringworm of children in Paris.<sup>1</sup>

At the International Congress of Dermatology, held in London, Colcott Fox and Blaxall stated that the result of a clinical, microscopic, and cultural examination made by them of more than 400 consecutive cases of ringworm of the scalp and beard, and of herpes circinatus of the skin, agreed generally with those of the French investigator. In London the *Microsporon Audouini*, in their experience, caused from 80 to 90 per cent. of all ringworms; the trichophyton endothrix scarcely 4 per cent.; while the "ectothrix" or "endo-ectothrix" was responsible for the rest. Trichophytosis of the beard seemed to belong to the "ectothrix" group. The great majority of ringworms of the skin (herpes circinatus) associated with tinea tonsurans depend, according to them, on trichophytes.

As regards the microscopical characters of the cultures, Fox and Blaxall cannot subscribe to Sabouraud's classification of the microspora as an independent family and of the endothrix and ectothrix fungi as members of the botrytis family or sporotricha, because of their tendency to form irregular masses of spores ("grape formation"). They consider that the microspora and the trichophyta all belong to the same family, and that their fructification is developed on a similar plan.

On the other hand, Leslie Roberts<sup>2</sup> does not accept Sabouraud's view that tinea tonsurans is a definite disease of two types produced by distinct classes of fungi. The essential bond between all trichophytic

<sup>1</sup> *Ann. de Derm. et de Syph.*, March, April, May, June, 1907.

<sup>2</sup> *Brit. Med. Journ.*, Sept. 29, 1894, and *Journ. of Path. and Bact.*, Aug., 1895.

fungi is, he holds, their keratolytic action. He rejects the anatomical, and still more the cultural, test. He sums up his conclusions as follows: That there exists in the lowest orders of plants, destitute of chlorophyll, an extensive and natural group of fungi whose distinguishing feature is their ability to *digest* horny tissues, probably by means of a ferment; that this keratolytic group includes favus (achorion), the various kinds of trichophytons, and some aspergilli, and probably many others not yet identified; that there are at least two natural distinctions observable in the purely trichophytic fungi—namely, a kind that digests both the cuticle and the cortical substance of the hair, and a variety that digests the cortical substance first, leaving the cuticle unaffected or attacking it at a later period.

I have made some independent observations on the subject, the results of which were communicated to the International Congress of Dermatology held in London in 1896, and are more fully set forth in a monograph.<sup>1</sup> They are founded on the examination of hairs from 126 consecutive cases of ringworm met with in private and in hospital practice, and taken just as they came, without selection. In the examination I found staining—which has been too much neglected by workers in this field—a great help. The following are the essential points in a method which I described some time ago.<sup>2</sup> A suspected hair is first steeped for one or two minutes in a mixture of a 5 per cent. alcoholic solution of violet gentian and anilin water (ten parts of the former to thirty of the latter); next dried with blotting-paper; then treated for one or two minutes with pure iodine and iodide of potassium in water;

<sup>1</sup> "Ringworm in the Light of Recent Research," with 22 micro-photographs and a coloured plate. London, 1898.

<sup>2</sup> *Practitioner*, Aug., 1895, p. 135.

dried again ; treated once more with anilin oil and pure iodine ; then cleared with anilin oil, washed in xylol, and mounted in Canada balsam. Further experience led to certain modifications, and in the preparation of the specimens from which a series of micro-photographs shown at the London Congress of Dermatology was made the following was the method adopted. The hair was first washed in ether for some seconds, in order to get rid of the superfluous fatty material. It was then placed, for staining purposes, in a solution of gentian violet (5 per cent. in 70 per cent. of alcohol). The small-spored fungus stains very quickly, not more than five minutes, as a rule, being required. The large-spored parasite takes much longer to stain ; it must be left for about an hour in the solution, which should, moreover, be heated over a spirit lamp for five minutes or so ; in this way the alcohol is driven off, the keratin is dissolved, and the fungus in the interior of the hair is deeply stained. The parasitic elements can be stained red by treating them in exactly the same way, but with the substitution of a 5 per cent. solution of fuchsin in water, with a little alcohol or a 2 per cent. solution of carbol-fuchsin. The red is better than the violet stain for photographic purposes.

When the hair is taken out of the staining solution, it should be steeped in iodine in order to fix the stain ; next it is decolorised by being placed in anilin oil or a mixture of two to four drops of nitric acid in anilin for ten to fifteen minutes ; then it is placed in pure anilin and kept in it for some seconds ; next it is washed in xylol, and, lastly, mounted in xylol balsam. It will be observed that the liquor potassæ has no place in this method. I find that potash destroys the mycelium and swells the spores, and hence the use of this agent produces effects that are not merely unsatisfactory, but positively misleading.

**Geographical distribution.**—Of the 126 cases which supplied the material for my preparations, in no fewer than 116 the small-spored fungus was found; in the remainder the parasite was of the large-spored variety. This gives a proportion of 92 per cent. of small-spored ringworm, a result which closely agrees with Fox and Blaxall's estimate of 80 to 90 per cent. These figures are much higher than those of Sabouraud, who finds that the small-spored fungus is accountable for from 60 to 65 per cent. of all cases of ringworm met with in France. The fungus is not, however, met with in all parts of France, for Dubreuilh and Fréche failed to find it in Bordeaux. Mibelli met with it only once among the numerous cases of ringworm that have come before him in Italy. Neither Ducrey of Pisa nor Reale of Naples saw it in Italy. Fergnani of Barcelona met with it in Spain; he does not state how frequently. The parasite also appears to be rare in Germany. Possibly the greater prevalence of the small-spored fungus in England may explain the fact, as to which British dermatologists are agreed, that ringworm is more refractory to treatment there than it appears to be in some other countries.

There is a similar diversity in the geographical distribution of the trichophyton. Sabouraud suggests that each species has a sphere of influence peculiar to itself; hence workers in a given country are not warranted in rejecting the results of workers in other countries merely because they do not agree with their own.

**The small-spored parasite.**—The special characteristic of the small-spored parasite (Plate xix., Fig. 1) is the absence of any particular arrangement of the spores. They are dotted about irregularly, sometimes in small numbers; everywhere, however, the individual elements are separate from one another, without visible bond of union. Interwoven with them is a felting of

mycelium, irregularly pointed, curved, and branching. The fungus lies around the hair, forming the greyish sheath described by Sabouraud. It eats away the hair, fraying the edges, working its way into the interior of the shaft, and growing downwards towards the root. In time the hair breaks some way from the follicular orifice; the parasitic sheath becomes disintegrated, forming a patch of ash-coloured scales on the epidermis.

**The large-spored parasite.**—The distinctive features of the large-spored fungus (Plate XIX., Fig. 2), apart from its greater size, are that it attacks the root first and grows upwards, and that the spores are arranged in regular chains, intermingled with short, regularly jointed mycelium. The hairs are broken off short, and there is no visible sheath; the spores lie around the hair, either outside (ectothrix) or inside (endothrix), or both inside and outside (endo-ectothrix).

**Size of the spores.**—As regards the size of the spores, the difference between the so-called “small” and “large” varieties is not very great. Dr. Galloway, who made careful measurements of the parasitic elements in my preparations, reports that in a specimen labelled “small” the mean of ten measurements of detached spores was 3.6 micro-millimetres, the extremes being 2 to 4  $\mu$ . The transverse diameter of the mycelium ranged between 2.5 and 4.5 micro-millimetres, giving an average of about 4  $\mu$ . In a specimen labelled “large” the mean of ten measurements of detached spores was 4.8 micro-millimetres (from 3 to 6  $\mu$ ). The diameter of the mycelium was about 5 micro-millimetres, but varied from 3 to 6  $\mu$ . It seems fair, therefore, to conclude that the differential feature between the two varieties is not so much the size of the spores as their arrangement and their mode of growth on the hair.

**Cultures.**—The ringworm fungus can be grown on various media, such as beer-wort or potato, the appear-



ance varying according to the composition of the culture medium. A medium containing sugar gives the best results, and the one generally used is prepared with a special maltose and peptone and is known as French proof-agar. It consists of : Maltose 3·5, agar-agar 1·3, peptone 0·5, water 100. Cultures are made by cutting up the affected hairs with a sterilised knife and inoculating one or more pieces. Without going into the more minute cultural distinctions between the different varieties of fungus, it may be said that cultures of small-spored ringworm are in general characterised by a fine white downy disc growing in concentric circles with a central knob, those of the large-spored endothrix by a coarser powdery crateriform growth or in some cases by a violent acuminate culture, and the large-spored ectothrix fungus by luxuriant radiating stellate cultures with a powdery surface and a central opaque boss.

**Summary of Etiology.**—To sum up the etiology of ringworm :—

There are at least three, possibly more, distinct species of fungi which produce the disease in different cases. One of these is a small-spored fungus—*Microsporon Audouini*—which attacks chiefly the scalp, and almost exclusively in children. Another is the large-spored endothrix fungus, which attacks the scalp, body (*tinea circinata*), and in some cases the beard and nails (*onychomycosis*), and a third is the large-spored endo-ectothrix fungus which attacks the scalp, body, beard and nails.

The botanical character of the ringworm fungi is uncertain. Sabouraud classes the large-spored fungus, to which alone he allows the name of trichophyton, among the *Sporotricha*, a species of the genus *Mucedo* ; the *Microsporon Audouini* is as yet “unattached.” Colcott Fox believes that the microspora and trichophyta all belong to the same family.

The origin of the fungi is also uncertain. Sabouraud thinks it probable that the trichophyta, or some of them, may exist independently as saprophytes, and this suggests the possibility of direct contagion from mouldy vegetable substances. Some trichophytes are of animal origin, derived more particularly from the horse and the cat, and some cases have been shown to be derived from birds. The small-spored fungus is likewise occasionally derived from the horse, cat, or dog.

Ringworm is transmitted by direct contagion from one human being to another, or from an animal to a human being. It is also transmitted by indirect contagion, by infected brushes, caps, etc. Age is an important etiological factor in the case of scalp ringworm produced by the small-spored fungus, the affection being almost peculiar to childhood. There seems to be no limit of age in the case of body ringworm. Both sexes are about equally liable to the disease.

**Tinea tonsurans**, or ringworm of the scalp, is a disease almost peculiar to childhood, being only exceptionally seen in the adult. Liability to attack continues up to puberty, but the great majority of cases occur in children in the second half of the first decade of life. There is practically no difference in the two sexes in respect of liability, the slightly greater preponderance of boys in most collections of statistics being explained by greater exposure to contagion in the rough familiarity of school life. The incubation period, though variable within considerable limits, may for practical purposes be reckoned as under a fortnight.

Ringworm of the scalp is seldom, if ever, seen in its first beginning. Some localised scurfiness or loss of hair is discovered accidentally, or in consequence of the child scratching at the affected place. The initial lesion is often a small red papule, which develops about the orifice of a hair follicle; sometimes it is nothing more

than a minute scaly spot. The papule spreads peripherally, becomes scaly on the surface, and in a short time grows into a patch round or oval in outline, and slightly raised beyond the level of the surrounding skin. Similar patches are formed in the same way from other centres of infection. The patches vary in size from a threepenny-piece to a florin, but they are often as large as a five-shilling piece, and sometimes they are several inches in diameter, equalling in area a clerical tonsure (hence the name *tonsurans*). Generally there are one or two small satellite spots in the neighbourhood of a patch. The patch, as a rule, stands out against the healthy skin more or less sharply by difference of colour as well as by scaliness. The hue varies from a dirty grey or slaty blue to reddish brown; in fair subjects it is generally yellowish. The typical patch of small-spore ringworm is round, but it may be oval or irregular in shape, and the running together of neighbouring patches may give rise to areas of thickened desquamating integument with winding contours. The typical patch has a sharply defined margin, but sometimes around what may be called a central clearance there is an undergrowth of diseased hairs spreading out more and more luxuriantly towards the belt of healthy hair which marks the limit of the disease. The typical patch is often girt about by a narrow zone of erythematous redness; very rarely the edge of the ring is marked out by tiny vesicles. A typical patch is studded with dry, withered stumps of broken hairs, which stand out on its surface like the stubble on a mown field. The hair-stumps may be seen to have lost their natural gloss; they are thickened, and have a whitened, frosted appearance, produced by the parasitic sheath (*see* p. 358) which surrounds them. Each stump sticks out of what may be called a miniature mole-hill or cone-like elevation thrown up around the hair by the massing of epithelial *débris*, caused by the burrowing

of the fungus in the follicle. These tiny projections of the surface produce an appearance like "goose-skin." The individual hairs lose their elasticity, and are twisted and crumpled so as to have the appearance of corn-stalks beaten down by wind and rain. They are also loosened, so that they can be pulled out without pain.

The thickening of the hair is due to infiltration with fungus. Under the invasion of the parasite it becomes so brittle that it is broken to pieces by the epilating forceps, however gently handled, and is crushed with the greatest ease between the slide and the cover-glass.

Instead of stumps, the surface is sometimes studded with small black points, which plug the mouths of the follicles; these are hairs which have broken off at the level of the skin. The hair, however, soon grows to an extent sufficient to show itself for what it is. Microscopic examination of the hairs, after washing in liquor potassæ, shows the fungus on the outside of the hair (*Microsporon Audouini*) in the form of spores, arranged in the fashion of a mosaic, surrounding the shaft like the bark of a tree; and inside the hair in the form of threads of mycelia, branched, curved, and irregularly jointed.

The stumps of hairs attacked by the large-spored fungus have no white sheath, and commonly break off on a level with the skin. With the microscope the spores are seen to be arranged in chains, and the mycelium is short and regularly jointed.

Ringworm sometimes occurs, not in patches, but in isolated foci, thickened stumps, perhaps intermingled with black dots, being scattered over the whole scalp (*disseminated ringworm*, Aldersmith). The skin is generally healthy in appearance. Another anomalous form is *bald ringworm* (Liveing), or *tinea decalvans* (Tilbury Fox). The hair falls out in places, leaving a smooth bare spot of greater or less extent. This may occur in

a spot to all appearance previously unaffected; more frequently it occurs in an ordinary patch of ringworm. Other patches generally become bald in like fashion, and an appearance similar to alopecia areata is produced.

As a rule, the only lesions of the skin caused by the ringworm fungus are a little swelling and erythema at the outset, and not unfrequently slight excoriation caused by scratching. Inflammatory complications—vesicular, eczematoid, or impetiginous—are often set up by over-active treatment, but sometimes occur independently. Suppurative processes may be induced by secondary infection with cocci, or by the action of certain large-spored fungi, believed to be almost exclusively of animal origin, which are, as Sabouraud has shown, pyogenic. The most common complication is impetigo, characterised by the appearance here and there on the scalp of isolated pustules, which on drying form scabs. If the impetiginous process is not speedily stopped, it is apt to spread over the scalp.

The most severe complication is *kerion*. In this condition the skin is raised into a dome-like surface, which may be of considerable extent; the surface is angry-looking, smooth, and moist, and is thickly dotted with small holes, from some of which there projects a loose stump of hair, while others are filled with a plug of muco-purulent matter, and others, again, are empty and gaping. The holes are dilated follicles, and when a large proportion of them are plugged in the manner just described the appearance is very like that of a carbuncle. The swelling is tender and feels boggy, but does not distinctly fluctuate. Incision gives issue to little or no pus. The suppurative process is, in fact, localised in the follicles, at the bottom of each of which there is a little abscess. The pus loosens the hairs, and they are finally thrown off, the way being thus opened

for the escape of a thick, viscid pus. Sloughing never occurs, but in rare cases a subcutaneous abscess may form. After the swelling disappears the site of it remains for some time red and bare, and it may be long before a new growth of hair takes place. In some rare cases the necrotic process is so intense as to destroy the roots of the hairs, and thus cause permanent baldness over the affected area. Kerion is seldom seen in adults except in the beard. A special texture of skin appears to be needed for its development at any age, for cases are sometimes met with in which the use of the strongest irritants fails to induce it.

The only subjective symptom in uncomplicated ringworm of the scalp is itching, and even this is often absent. Even in strumous and ill-nourished children the affection causes no disturbance of the general health. The course is sometimes very rapid, especially in very young children. Dark hair is a less easy prey to the fungus than fair hair, and coarse hair resists more than fine hair. A patch of considerable size often takes several weeks, it may be months, to form. By continued spreading and confluence of patches, the whole scalp may in time be laid waste, its surface being covered by a thick layer of dry epidermic scales. On long-standing patches there may be seen at the same time thickened stumps and soft, downy, new hair, at first in small amount, but increasing as growth proceeds till a fresh crop of hair has taken the place of that blighted by the ringworm. However long the disease may last, it usually ends in cure—at puberty, if not before. I have, however, seen a few cases in which the disease has lasted from childhood to beyond the age of twenty-five. Permanent baldness sometimes results from the injurious application of irritants, such as croton oil, and small bare spots are sometimes left owing to destruction of hair roots by kerion. Bald spots are also occasion-



ally left in cases in which there has been neither artificial irritation nor suppuration.

In an ordinary case of ringworm, when the fungus has worked its way to the bottom of the follicle there is little or no further reaction, and a dry, scurfy condition of the affected surface results. The disease then enters on an excessively tedious phase. In consequence of the thickening around the neck of the follicle, which is the result of the inflammatory process set up by the irritation of the parasite or by excessive treatment, the sac is converted into what may be called a bottle with a narrow neck; thus the fungus is imprisoned in the follicle, and remedial agents are prevented from gaining access thereto. Disseminated ringworm is usually extremely obstinate, mainly, perhaps, because it is easily overlooked. I have known a boy suffering from this form of the disease to be a source of contagion in a school for many terms without suspicion attaching to him.

Kerion naturally tends to the cure of ringworm, the diseased hairs being cast off and the multiplication of the pus cocci having the effect of choking the growth of the fungus.

Apart from the nature of the soil, age greatly mitigates the disease. Other things being equal, ringworm of the scalp in a child of fourteen is usually much milder than in a child of ten. The constitutional state appears to have no influence either on the severity or the duration of the affection. Some of the most persistent cases that have come under my notice have been in perfectly healthy children.

The question of immunity is not altogether determined. Children of ten have what appear to be second attacks of ringworm, but such cases are probably for the most part instances of relapse rather than recurrence.



**Tinea circinata** (Plate XIX., Fig. 5).—On hairless parts ringworm, after an indefinite period of incubation—the length of which depends on the thickness of the epidermis—begins as a small red spot, slightly raised, and having a well-defined border. This spot gradually spreads at the edge, its surface meanwhile becoming more or less scaly. As it extends peripherally the redness disappears in the centre, leaving a slightly discoloured branny area, which forms the inside of a red ring. The circle gradually enlarges like the fairy rings of the mushroom, without any widening of its edge, and it may expand so as to enclose a considerable area. There may be only one such ring, but more frequently there are several, and in that case those adjoining each other may run together and form festooned patterns. There is generally no tendency to symmetrical arrangement or grouping of the rings; occasionally, however, two or more rings are placed concentrically. The lesions are often situated on the face, neck, hands, or other exposed surface. Not unfrequently involution does not take place in the centre as the edge advances, and the lesions take the form of patches instead of rings. These patches have a clearly defined border, but they are not always circular or oval in outline. The process is usually accompanied by inflammation, the intensity of which varies according to the idiosyncrasy of the skin. The ring or patch often becomes the seat of papular or vesicular eruption, and pustules may develop as the result of the inoculation of pus cocci and other micro-organisms. Occasionally the neighbouring lymphatic glands are slightly enlarged.

In the pubic, perineal, and axillary regions the growth of the fungus is stimulated by the warmth and moisture, and both the primary and the secondary lesions are of a more intensely inflammatory character.

than in other situations. The affection—which is often termed *eczema marginatum*, but would be more properly called *tinea marginata*, and which has been shown by Sabouraud to be caused by a special fungus—may spread over the lower part of the belly, the buttocks, and in the fold of the nates. Sometimes it attacks the inguino-femoral region. It is seen in the highest stage of development in hot climates.

**Dhobie**, or washerman's itch, is the name given in India and the tropics to almost any form of eruption limited to the groins and inner sides of the thighs and the axillæ. That some of the forms are a variety of ringworm is well recognised, a fact which I can confirm from personal observation. Some of the cases are a simple intertrigo produced by heat, and others, according to Patrick Manson,<sup>1</sup> may be caused by the aggravation of erythrasma in hot weather.

The **pathology** of ringworm represents the results of the growth of the fungus in the epidermis—namely, destruction of the hair, and an inflammatory process set up by the irritation of the fungus, complicated in many cases by lesions consequent on the inoculation of purulent material.

The **diagnosis** of *tinea circinata* seldom presents much difficulty, the lesions having a characteristic appearance. The presence of the fungus is conclusive, but it must be admitted that its discovery is not always easy even to an expert. It is far otherwise as regards ringworm of the scalp, where in many cases the secondary lesions mask the real disease so completely that doubt can be set at rest only by microscopic examination. In an ordinary case careful examination of the diseased patches will seldom fail to reveal the characteristic broken, twisted hairs. In very chronic cases, when the scalp is dry and scaly, the disease may be mistaken for

<sup>1</sup> "Tropical Diseases," 4th edition, 1907.

seborrhœa, eczema, or psoriasis. In seborrhœa, however, the scaliness is not in patches. Although eczema may be simulated by an irritated condition of the scalp, resulting either from scratching or from irritant applications, circumscribed patches are rarely seen, and loss of hair is not common. Psoriasis of the scalp is in most cases associated with characteristic lesions, in parts like the elbows and knees, generally affected by that disease; moreover, the patches, though circumscribed and scaly, are often covered with crusts, and destruction of hair is exceptional. In all these cases the characteristic stubble of broken twisted hairs is absent. Favus can be distinguished from ringworm by its peculiar sulphur-coloured discs and mousy odour, and by the fact that the hair comes out unbroken. The variety of ringworm known as *tinea decalvans* is sometimes difficult to distinguish from alopecia areata. Broken hairs should be looked for at the edge of the patch; the presence of the fungus in them at once settles the question.

The **prognosis** is always good as regards recovery, but should be very guarded in respect of the time the affection is likely to last. In chronic cases the average duration of treatment by drugs may be estimated at a year, or longer; but with the use of X-rays this period is greatly reduced (*see* p. 375).

**Treatment of ringworm.**—This consists in the destruction of the fungus and the removal of the diseased hairs. These objects are effected (1) by epilation, effected by X-rays; (2) by mechanical measures directed to the removal of the superficial parts of the epidermis, so that free access may be gained to the fungus; (3) by the application of parasiticial agents, which may act (*a*) directly on the fungus and (*b*) on the tissues, making the soil unfavourable to its growth.

Ringworm of the body is easily cured, as the affected parts are always accessible. The most effectual mode

of treatment is the mechanical removal of the superficial layers of the epidermis by the application of *iodine*, *liquor epispasticus*, or other blistering fluid. In this way the whole of the fungus may be destroyed at once. If some be left in the deeper layers of the rete, below the limit of the action of the blister, the application of a parasitocidal remedy will speedily destroy it. The most effective agent for the purpose is *chrysarobin*, which may be applied as *an ointment composed of gr. xx of the drug to ℥j of lanolin*, or in the form of *Unna's ung. chrysarob. co.*, which consists of 5 parts of *chrysarobin*, 2 parts of *salicylic acid*, 5 parts of *ichthyol*, and 100 parts of *unguentum simplex*. Other useful applications are ointments composed of *oleate of copper* or *oleate of mercury gr. iij, lanolin cum oleo ℥j*; or *sublimed sulphur gr. iij, acid. carbol. mxx, lanolin ℥ij, ol. oliv. ℥ij*; either of these should be rubbed in thrice daily. For young children a milder application, such as *hydr. ammon. gr. iij, lanolin* or *lard ℥j*, is advisable.

The treatment of ringworm of the scalp has been revolutionised by the use of the X-rays, by means of which cases that took many months to cure can be cured in a few weeks. Sabouraud has stated that the cure of a case of ringworm at the Hospital of St. Louis used to cost on an average 2,000 francs; it now costs 260 francs. The treatment consists simply in the mechanical removal of the fungus—which is not killed by the rays—with the diseased hairs. Epilation may be brought about by a single exposure or by a series of exposures. The difficulty of estimating the exact amount of rays required to produce epilation has been to a great extent overcome by Sabouraud's method of employing pastilles of platino-cyanide of barium, which change to a standard colour after exposure to the rays for a certain length of time. I do not, however, find it advisable to rely upon this method alone; the milliampèremeter, ampèrage in the

primary circuit, spark-gap, appearance of the tube and anode, time of exposure, etc., should all be carefully watched and kept as constant as possible, so as to avoid any fallacies due to the pastille.<sup>1</sup>

If the older methods of treatment be employed, the first thing to be done is to get a clear field of action by epilation. As many of the diseased hairs as possible should be picked out individually with forceps. Not only should all hair that is visibly affected be removed, but also a ring of sound hair around the seat of disease, in order to prevent its spreading. If done carefully, epilation causes but little pain. In a recent case the application of strong iodine or blistering fluid may, as in the case of ringworm of the body, be the means of removing a large quantity of the fungus. This, however, should not be done too frequently, lest thickening should result from the repeated inflammation.

The next step should be to open up a free way into the interior of the follicles by clearing away obstructing fat and epithelial *débris* from their orifices. For this purpose the parts should be washed with spirit and ether lotion, which will dissolve fatty substances and dehydrate the tissues. It may here be pointed out that as water is one of the substances required by the fungus for its nutrition, parts that are the seat of ringworm should never be washed with that fluid; the disease is always spread by this procedure. The application of mild antiseptic washes is, however, permissible. A good lotion for the purpose is *salicylic acid dissolved in chloroform or ether* (*gr. v to xx, ad ʒj*); this dissolves the fat, dehydrates, loosens the hairs, and directly attacks the fungus. By the use of salicylic acid in this form, if applied sufficiently early, before the fungus has had

<sup>1</sup> For the results of a series of seventy cases of ringworm of the scalp treated by this method, see "Light and X-Ray Treatment of Skin Diseases," by the Author and Dr. Dore (1907).

time to reach the deeper part of the follicle, a rapid cure may be effected. It is an essential condition of success, however, that no fatty substances should be used.

These remedies, however, penetrate only a short distance into the epidermis. In a chronic case more powerful remedies are required, in order to set up a curative dermatitis. In such circumstances *chrysarobin*, brought to European notice in 1875 by Dr. Blanc, who had found it in use among the natives of India as a remedy for ringworm, is the most effective agent. Unna has pointed out that the scalp does not react strongly to the drug. Duhring<sup>1</sup> also speaks very highly of *chrysarobin*. He applied it in the form of an ointment containing from fifteen grains to two drachms of *chrysarobin* to the ounce, the strength in common use being one drachm to the ounce. A small quantity of the ointment was well rubbed in with a bit of cloth or a mop. Hodara<sup>2</sup> uses a solution of equal parts of glycerine and chloroform, containing 5 to 10 per cent. of *chrysarobin*. An explanation of the enormous number of remedies found useful in chronic ringworm is to be found in the fact that whatever excites inflammation is so far beneficial. This is the mode of action of *Coster's paste*, *strong sulphur and mercurial ointments*, *oleate of copper*, *carbolic acid*, etc., all of which are useful.

Lastly, in some cases a more destructive inflammation, producing a condition resembling kerion, is required, the object being to excite an inflammatory process and perhaps local necrosis, whereby the fungus, as well as the affected tissues, shall be involved in the destruction. Aldersmith uses *croton oil* for this purpose. Besnier goes so far as to say that ringworm can be cured only by inflammation, as there is, in his opinion,

<sup>1</sup> *Amer. Journ. of Med. Sci.*, Feb., 1893.

<sup>2</sup> *Journ. des Mal. Cut. et Syph.*, 1903.



no remedy that can destroy the fungus. Vidal's<sup>1</sup> treatment is based on the fact that the fungus, being aërobic, can be destroyed by deprivation of air. The hair having been cut close, the head is rubbed with essence of turpentine and the affected parts are painted with tincture of iodine. The head is then smeared with vaseline, either pure or containing boric acid or iodine (1 per cent.), and covered with a caoutchouc cap or a guttapercha leaf kept closely applied to the scalp with a bandage. The dressing is renewed morning and night, and the parts are washed with soap and water and carefully dried.

In schools special precautions are required to prevent the spread of ringworm. When a case is discovered, the patient should at once be isolated, and a careful examination of each child should be made day by day.

**Tinea sycosis**, or **tinea barbæ**, is follicular inflammation of the chin and other hairy parts of the face, in which the ringworm fungus is the irritant. The initial lesion is a red scaly spot, which soon enlarges, sometimes undergoing involution in the centre, and forming a ring; in other cases retaining the character of a patch, with a defined margin and scaly surface. As other similar lesions develop, they often become confluent. Pustules, each of which is traversed by a hair, form both on the surface of the patches and on the intervening skin. The eruption is accompanied by considerable itching. A more severe form of the affection, corresponding to kerion of the scalp, is sometimes met with; the inflammatory process is more intense, and spreads rapidly; there is brawny infiltration of the skin of the chin and sides of the face, the surface of which is thrown up here and there into irregular lumps, and is thickly studded with hair-pierced pustules. The hair is loosened, but as a rule not damaged, except in very obstinate

<sup>1</sup> Congrès Intern. de Derm. et de Syph., tenu à Paris en 1889' *Comptes-Rendus*, Paris, 1890, p. 216.



cases. The suppurative process may, however, be sufficiently severe to destroy the follicles, leaving permanent scars, on which no hair can grow. The affection may persist indefinitely.

Tinea sycosis is caused by the large-spored trichophyton—chiefly the *ectothrix* variety—and is communicated by contact with infected persons—especially children—or animals. The shaving brushes and other instruments used by barbers are very often the medium of conveying the disease. This form of ringworm is naturally almost confined to the male sex, and it is most common in young adults.

Pathologically, the affection is a folliculitis and perifolliculitis, generally running on to suppuration. The process begins in the interior of the follicle, and spreads outwards, loosening the hair-shaft from the wall of the follicle.

The **diagnosis** has to be made from sycosis and from eczematous folliculitis. In the former case an appeal must often be made to the microscope; clinically, the trichophytic disease spreads more rapidly, and causes more lumpiness of the affected surface. The eczematous condition is distinguished by the fact that serous discharge is, or has been, a feature in the process; moreover, there is little or no loosening of the hairs, and the affection is not confined to the hairy parts.

The **prognosis** is good as regards ultimate cure, if the patient will persevere with suitable treatment.

The **treatment** should be conducted on the same general principles as that of ringworm of the scalp. X-rays should be used when possible, but require great care. In cases in which this is impracticable, epilation with forceps should be carried out piecemeal. This will give exit to the pus; incision is never required. Parasitocides must then be applied, their nature and strength being carefully adapted to the condition of the affected

parts and the susceptibility of the patient's skin. *Chrysarobin*, in the form of an ointment, is the most efficient application. *Sulphur*, or *oleate of copper*, is useful in the milder forms of the affection. The case must be kept under observation for a long time after apparent cure. For the prevention of the disease it might be well to follow the example of certain legislative authorities in Germany, France, and in some of the United States of America, which have made it compulsory on all barbers and hairdressers to disinfect their instruments thoroughly every time they are used.

**Ringworm of the nails.**—The nails may be attacked by the trichophyton, either in association with ringworm on some other part of the body or independently, especially in nurses who have to look after children suffering from the disease. Inflammation of the matrix is set up, and the nail becomes thickened, lustreless, uneven, and brittle. The treatment is to scrape the nail thoroughly, and apply chrysarobin or some other parasiticide. The **treatment** used by Harrison, of Bristol, for ringworm of the scalp is particularly useful for the disease as it affects the nails. He uses two solutions, No. 1 composed of *liquor potassæ* and *distilled water*,  $\bar{a}\bar{a}$  ℥ss, and *iodide of potassium* ℥ss; and No. 2, consisting of *hydr. perchlor. gr.* iv, *spir. vini rect.* and *distilled water*,  $\bar{a}\bar{a}$  ℥ss. The nail having been scraped, No. 1 is applied on lint under oiled skin for fifteen minutes; then No. 2 is immediately applied in the same way, and kept on for twenty-four hours. The nail is then again scraped, and the applications are repeated as often as may be necessary. H. Fournier<sup>1</sup> recommends the removal of the whole of the affected parts by scraping, scratching, or avulsion, and by the action of various local remedies such as *creosote*, *acetic acid*, *benzine*, *corrosive sublimate* (2 per cent. in alcohol or chloroform), *mercurial plaster*,

<sup>1</sup> *Journ. des Mal. Cut. et Syph.*, April, 1889.



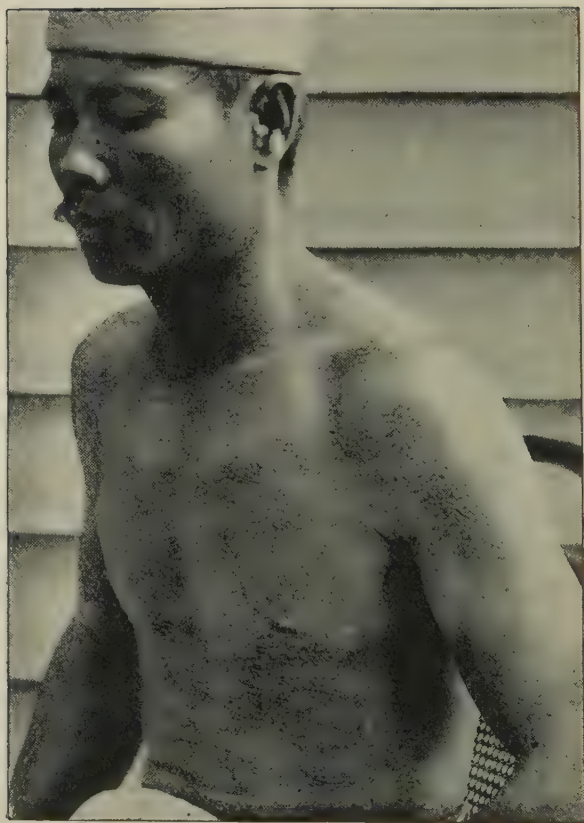


PLATE XX.—TINEA IMBRICATA.

*resorcin* or *tincture of iodine*. The two last named, combined with previous maceration of the nail by means of indiarubber coverings, are those which Fournier has found most successful.

**Tinea imbricata** (Tokelau ringworm) is an affection confined to the tropics. I have no personal knowledge of this disease, and the following account is mainly condensed from an article by Patrick Manson.<sup>1</sup> The disease is caused by a vegetable parasite resembling in some respects the ordinary trichophyton, but differing from it slightly in some points, especially in the great abundance in which it is present (Plate xix., Fig. 6). Tribondeau maintains that it is a lepidophyton and not a trichophyton. It may attack any part of the body, but generally spares the scalp, and as a rule avoids hairy parts. The characteristic lesion is a patch consisting of concentric rings of scales about  $\frac{1}{8}$  inch apart (Plate xx.). They spread at the edge, not only centrifugally, but towards the centre, so as to cover the spaces between the rings and the central area, thus converting the whole into a circular patch resembling watered silk. The scales are like pieces of tissue paper; they have a free border and are firmly adherent at the opposite edge, resembling surgical flaps. The scales are arranged so that the free border of each is towards the centre of the circle or system of circles to which it belongs. The only symptom is itching, which is usually intense. When the scales separate, parallel lines of a colour rather darker than the fawn colour of pityriasis versicolor are left; these lines have a more or less concentric arrangement. Nearly the whole body is sometimes affected, but the disease has no effect on the general health. *Tinea imbricata* is con-

<sup>1</sup> *Brit. Journ. Derm.*, 1892, p. 5. An excellent description of the disease is also given by Guppy in his work, "The Solomon Islands and Their Inhabitants," 1887. See also Lutz (*Monats. f. prakt. Derm.*, 1892, No. 4).

tagious ; after inoculation there is an incubation period lasting on an average nine days. Neither sex is exempt, and children are particularly liable. The imbricated scales and concentric rings are so characteristic that there is hardly any possibility of the affection being confused with any other. The only disease at all resembling it is *tinea circinata*, from which it is at once distinguishable by the centripetal spread of the process. The treatment is to apply parasitocides such as the linimentum iodi, or chrysarobin ointment, which is now in general use among the natives of Tahiti as a prophylactic. The clothes, etc., should be disinfected or destroyed.

**Favus** is a disease caused by a fungus, the *Achorion Schoenleinii* (Plate XIX., Figs. 3 and 4). The affection is so rare in England that the replies to an inquiry on this subject addressed by me to the eleven metropolitan hospital schools a few years ago showed that only thirteen cases had been under treatment at these institutions during the previous year. It is more common in Scotland. Until lately favus was comparatively common in some parts of France, where it was a not infrequent cause of the rejection of conscripts for military service. It was almost unknown in New York and other parts of the United States till it was imported in recent years by immigrants from Europe. The disease shows a marked preference for the scalp, but no part of the skin is exempt, and even mucous membranes are liable to be attacked. On the scalp it first appears as a tiny sulphur-yellow disc or *scutulum*, depressed in the centre like a cup and pierced by a hair. This is the characteristic lesion of favus. The little disc increases in size and becomes crusted over, the scutula being sometimes swallowed up in a large rugged scab. About the edge of the scab, however, the little discs can still be seen. The lesion generally takes several months to reach its full develop-





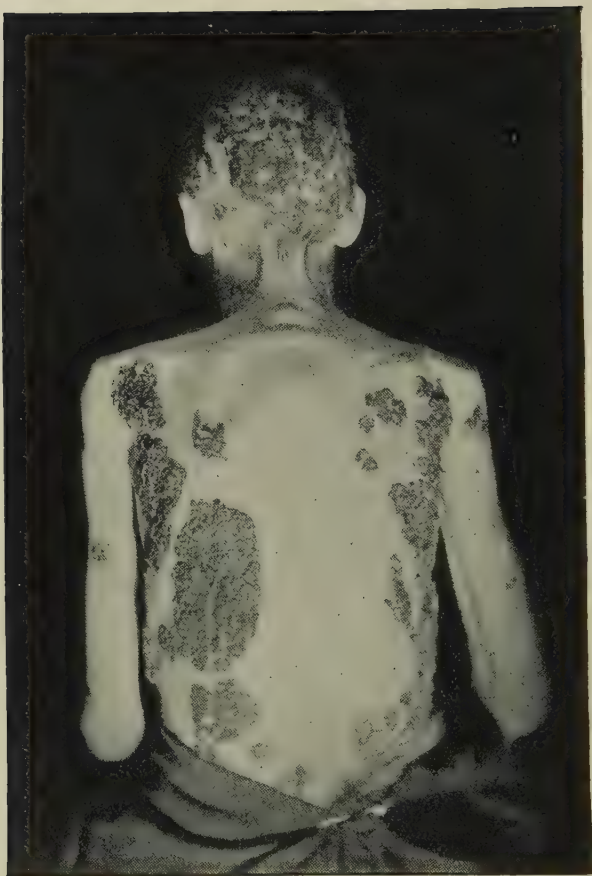


PLATE XXI.—AUTHOR'S CASE OF FAVUS.

*(Reproduced from the Brit. Journ. Derm., 1891.)*

ment, when the scab and scutulum come away, leaving a glistening atrophic pit destitute of hair. The hair in the favus crusts is dry and dusty-looking, and is easily pulled out unbroken ; sometimes it is split longitudinally. No new hair is formed. In severe cases several lesions run together, forming raised crusted patches of irregular outline, which may be of considerable extent. Between the crusts there are often irregular pale, bluish-pink scars. The lesions are usually present in various stages of development at the same time, scutula, large crusted excrescences, and scars being intermingled. The disease is not unfrequently complicated by pediculosis, and secondary lesions may arise in the usual way by inoculation of pus cocci. Itching is generally present, but the most characteristic symptom, apart from the lesions, is a musty, mouse-like odour which is given off by the patient. The disease is essentially chronic, and may last fifteen or twenty years or longer. Sometimes it comes to a standstill spontaneously, leaving a few bald spots.

On hairless parts the lesions present the same general appearance. In a case which came under my observation <sup>1</sup> the whole scalp was covered with large patches of favus crusts (Plate XXI.). A great portion of the back was occupied with similar masses ; there were also crusts on the cheeks. The nails of both hands and both feet, particularly those of the first finger of each hand and the great toes, were thickened, uneven, and lustreless ; in some of them no trace of true horny substance remained, its place being occupied all over the matrix and nail-bed by an irregular, lumpy, dirty-yellowish crust. The disease began when the patient was twenty-three years of age, and lasted fourteen years. She died of acute phthisis, which lasted nearly three months, and during that time the favus spread over the

<sup>1</sup> *Brit. Journ. Derm.*, April, 1891, p. 101.

body with great rapidity. Kaposi has reported a case in which a patient suffering from universal favus died with symptoms of severe gastro-intestinal irritation, which was found after death to be due to the presence of the favus fungus in the stomach and intestine.

The disease is caused by contagion, the fungus being often derived from animals, especially from cats. Mice, rabbits, fowls, and dogs are also subject to it. It grows much more slowly than the ringworm fungus, and is therefore not so easily transmitted. Want of personal cleanliness is a predisposing factor, as in persons who are sparing and infrequent in their ablutions the fungus is more likely to remain and take root. The fungus seems to find a more favourable soil for its development on the skins of persons in weak health, especially those suffering from phthisis, than in others.

Pathologically, the disease represents the reaction of the tissues to the irritation caused by the growth of the fungus. The spores generally find their way into the hair follicles, where they grow round the hair seat. The favus fungus grows on the epidermis, the density of the growth causing pressure on the parts below, thus crushing out the vitality of the hair and giving rise to atrophic scarring. The characteristic cup shape is attributed by Unna to growth proceeding more vigorously at the sides than at the centre.

There is some difference of opinion as to whether there is only one or several varieties of favus fungus. It was suggested by Quincke that there are three different species. Unna and Frank<sup>1</sup> have also found three varieties, two of which were successfully inoculated on the healthy subject, and produced scutula presenting certain differences of appearance to the naked eye. One of these, called by the authors *Favus griseus*, showed greyish-yellow scutula; the other (*Favus sulphureus*

<sup>1</sup> *Brit. Journ. Derm.*, May, 1892, p. 139.

*celerior*) showed sulphur-yellow scutula, which grew more quickly than the former. Danielssen,<sup>1</sup> however, as the result of a series of experiments, contends that the *Achorion Schoenleinii* is the only fungus of favus. Sabrazès<sup>2</sup> examined seventeen cases of favus, and in each case found only the *Achorion Schoenleinii*, which he cultivated and inoculated in mice and in the human subject, producing typical favus cups. He found that the female skin is much more easily inoculable than the male. Truffi, too, holds that there is but one species of achorion, but that this assumes widely different forms.<sup>3</sup> On the other hand, it has been shown by Bodin<sup>4</sup> that there is a group of fungi intermediate between the achorion and the trichophyton. These intermediate forms are of two kinds: mucedineæ, presenting the mycological characters of achorion, but producing lesions of trichopytic type; and others which have the characters of trichophyton and produce favic lesions. In a communication to the Académie des Sciences Sabrazès<sup>5</sup> referred to observations proving the existence of fungi intermediate between the trichophyton and the achorion.

The **diagnosis** of favus presents no difficulty in well-marked cases, the cup-shaped, sulphur-coloured scabs and mousy odour being characteristic. When, however, the initial lesions have coalesced into dense crusts, the affection may resemble psoriasis of the scalp; the scales, however, are less pearly, and scutula or sulphur-yellow scabs can often be seen about the edges; the lustreless hair and atrophic scarring are also distinctive features. Favus can be distinguished from

<sup>1</sup> "Atlas of Vegetable Parasitic Diseases," Bergen, 1892.

<sup>2</sup> *Arch. Clin. de Bordeaux*, June and July, 1893.

<sup>3</sup> *Giorn. Ital. delle Mal. Ven. e della Pelle*, 1902.

<sup>4</sup> *Comptes-Rendus de l'Académie des Sciences*, May, 1898.

<sup>5</sup> *Ibid.*, May 23, 1898.

eczema and seborrhœa by the fact that it is not diffuse, as the lesions in those conditions are, but is always bordered by a well-defined margin. It is sometimes very difficult to distinguish it from ringworm, and in some cases the diagnosis can be made only with the help of the microscope, or by culture of the parasite. All the lesions should be minutely examined with a lens for remains of the yellow discs of favus or the broken hairs of ringworm. It is sometimes a good plan to leave the disease to itself for a little time, so as to watch the development of fresh foci, when characteristic elements will be recognisable.

The **prognosis** as to cure is good, but the disease is sometimes extremely refractory to treatment. As in the case of ringworm, it is much more easily dealt with on hairless parts than on the scalp.

The **treatment** must be conducted on the same general lines as that of ringworm. The crusts must be removed by thorough soaking with carbolised oil; the head should then be washed with soft soap. Epilation by X-rays should be practised, and finally parasitocides of the same kind as those used for the destruction of the ringworm fungus should be vigorously rubbed in. If the nails are affected, avulsion may be required so as to allow free access to the parasitocidal agent. The appearance of fresh discs must be carefully watched for; when found, they should be at once dealt with as before. After apparent cure, the patient must be kept under observation for some time.

**Tinea versicolor** is caused by a special fungus, the *Microsporon furfur* (Plate xix., Fig. 7). The lesions are roundish, slightly raised, scaly patches, with a well-defined border; they are sometimes discrete and irregularly scattered about, but more often they are fused together so as to form large irregular areas, usually more on the front of the body than on the back. The

trunk is generally the only part affected, though occasionally the upper parts of the limbs are invaded. I have also seen it on the face. The characteristic feature about the lesions is the peculiar brownish discoloration of which they are the seat. The shade varies from "fawn" to "liver"; in persons who have lived in hot climates it is sometimes black, while in coloured races it is grey or white. The discoloration is quite superficial, affecting only the uppermost layers of the epidermis, so that it can in great measure be scraped away with the finger-nail. The patches, as a rule, spread very slowly. The only symptom caused by the affection is itching, which is not generally very pronounced. In persons who perspire freely, however, the lesions may be the seat of slight inflammation, and even of an eczematoid process. In such cases there may be intense itching.

The disease is contagious, but the fungus requires a particularly favourable soil and prolonged contact before it can take root. *Tinea versicolor* has been produced by experimental inoculation both in men and in animals (Köbner). It occurs chiefly in early adult life, and men are rather more liable to attack than women. Profuse sweating prepares the soil to some extent for the fungus, and for this reason phthisical subjects are especially liable to attack. Neither good health nor scrupulous cleanliness, however, is an absolute protection.

The patches of discoloration are composed of masses of strongly refracting spores, grouped together in masses somewhat resembling bunches of currants amidst interlacing threads of mycelium (Plate XIX., Fig. 7). They are easily found, as they are situated in the superficial layers of the epithelium.

The disease is not unfrequently mistaken for a secondary syphilide, but any doubt as to its nature can



be set at rest by scraping off the surface of the discoloured patch and examining it microscopically.

The **treatment** consists in thorough washing with soft soap and warm water, afterwards rubbing the part with a flesh brush in order to remove the natural oiliness of the skin. The part should then be treated with iodine, which not only effects a rapid cure, but by its staining power brings into view small and ill-defined spots. If the smell of iodine is objectionable, a solution of hyposulphite of soda— $\text{3ij}$  to  $\text{3j}$ —or sulphurous acid, diluted to one-fourth with water, may be used.

**Erythrasma** is a somewhat rare disease, and so unimportant that it need only be briefly referred to. It is characterised by the formation of brown patches in warm and moist parts, such as the axilla, the groin, the genito-crural region, and between the nates. The lesions cause no symptoms except slight itching.

The affection is due to the growth of a vegetable parasite, *Microsporon minutissimum* (Plate XIX., Fig. 8).

The **treatment** is the same as that recommended for *tinea versicolor*:





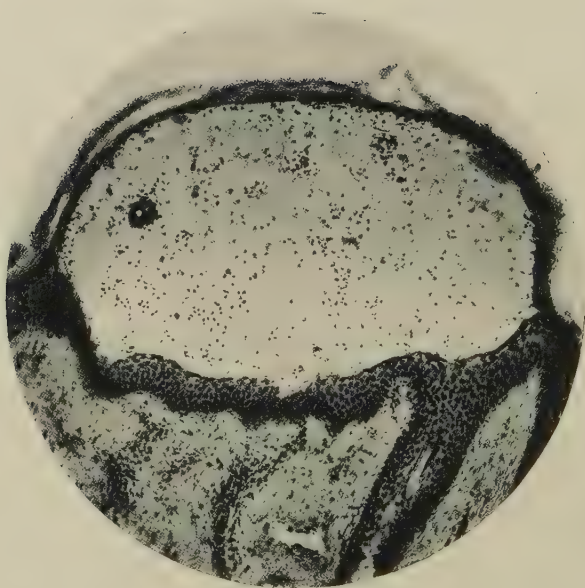


PLATE XXII.—SECTION OF PUSTULE IN IMPETIGO  
CONTAGIOSA (GILCHRIST).

## CHAPTER XVIII

### LOCAL INOCULABLE DISEASES (*concluded*)

#### III.—VARIOUS MICRO-ORGANISMS

THE local inoculable affections of the skin which are known to be caused by an irritant of microbic nature are impetigo contagiosa, sycosis, boils, carbuncle, malignant pustule, acne, perlèche, Delhi boil, mycetoma, actinomycosis, sporotrichosis, blastomycetic dermatitis, and elephantiasis Arabum.

**Impetigo contagiosa** (Tilbury Fox) is a pustular eruption caused by the inoculation of streptococci. The appearance of the lesions is occasionally preceded by some amount of febrile disturbance. Soon small erythematous spots come out; on these vesicles form, containing a turbid fluid, which rapidly becomes purulent (Plate XXII.). They soon break, and discharge a fluid that quickly dries up, forming yellowish scabs. In uncleanly persons they are almost always brown, and even black, from dirt. A characteristic feature is that the scabs have no halo of hyperæmia around them, but look as if they were stuck on the skin with gum. Dotted about among them are pustules, which often run together so as to form scabs of considerable size. The scabs are at first loose, but afterwards they adhere so firmly to the skin that their removal requires some force and is followed by a little bleeding. The raw surface thus left secretes a thick purulent discharge, resembling honey in appearance and consistence, which in its turn dries into a fresh scab ("honeycomb scab"). The glands in the

vicinity not unfrequently become enlarged and suppurate. After healing a reddish stain is left, which after a time completely disappears. The eruption varies greatly in severity, being sometimes limited to a few discrete lesions, sometimes extending over nearly the whole body. Sometimes the distribution is annular (*impetigo circinata*), as in a case reported by Schamberg.<sup>1</sup> In another case of *impetigo circinata*, a boy of five, reported by Adamson,<sup>2</sup> the rings covered the whole trunk, and in addition the extremities, from the wrists and ankles downwards, were thickly set with macules, vesicles, and bullæ, many of the bullæ being fully three-quarters of an inch in diameter. When the eruption had disappeared the child was brought to hospital again suffering from an affection of the nails. In several of the fingers and toes that part of the nail which overlies the matrix had been destroyed, the area being occupied by a yellowish-brown crust, very tough, and firmly adherent to the matrix beneath. These lesions appeared to be due to infection by the same agent that had caused the skin eruption. Corlett<sup>3</sup> met with fifteen cases of what he terms *impetigo bullosa* among the troops who had taken part in the Hispano-American war. Extensive as was the eruption, there were no grave constitutional symptoms, and recovery took place within a few weeks. In several instances the serous or sero-pustular contents of many of the bullæ were found to be auto-inoculable.

The exposed parts are more likely to be the seat of *impetigo* than those covered by the clothes. The face is most frequently attacked, the lesions being thickest around the mouth and the nostrils and on the chin; the occipital region is another favourite situation. In all these places the disease is more obstinate than elsewhere.

<sup>1</sup> *Journ. Cut. and Gen.-Urinary Diseases*, May, 1896.

<sup>2</sup> *Brit. Journ. Derm.*, 1904, p. 165.

<sup>3</sup> *Trans. Amer. Derm. Assoc.*, 1906, p. 123.

In some cases the confluence of numerous lesions covers the face with a mask of scabs. Other parts may also be the seat of the disease, the following being the order of frequency in which they are attacked: Scalp, nape of neck, neck, upper extremities, hands, lower extremities, abdomen, back. In parts where the pustules are exposed to friction, as on the limbs, they are generally ruptured in an early stage of their development, and a flat irregular scab, surrounded by a more or less pronounced areola, forms over them. These lesions were formerly believed to constitute a distinct disease, to which the name of "ecthyma" was applied; the condition is, however, so frequently associated with contagious impetigo as to make it certain that they are modifications of the same process.

Duhring describes a form of impetigo distinct from that here referred to, in that it is not contagious, that it is pustular from the first, and that all the lesions come out at once, not in successive crops. My own experience does not lead me to agree with Duhring that any form of impetigo is non-contagious, and the cases to which his description would apply in other points seem to me to be simply examples of a variety of impetigo contagiosa.

Among the complications of impetigo contagiosa may be mentioned boils and folliculitis. In unhealthy children the eruption is frequently pustular from the first. The disease often occurs epidemically. In such circumstances it runs a definite course, crops of vesicles continuing to come out for about a week, then drying up, the process being completed in about a fortnight. In the non-epidemic form the affection, if left to itself, may last an indefinite time.

Contagious impetigo is much more common in children than in adults. The scrofulous diathesis is a powerful modifying factor. The exciting agents were formerly thought to be staphylococci—*Pyogenes aureus* and *albus* (Plate xxiii., Fig. 7). In Corlett's cases of

"impetigo bullosa" (p. 390) the *Staphylococcus aureus* was found in some of the cultures made from the blebs. In 1899 Unna,<sup>1</sup> who called the disease "impetigo vulgaris," thought that it was caused by a special coccus. By the inoculation on himself of pure cultures of these micro-organisms, Bockhart produced lesions exactly similar to those of impetigo contagiosa. His results were confirmed by Wickham and others.<sup>2</sup> In addition to the staphylococci just mentioned, Leroux, in 1892, found a special micrococcus, which he called the streptococcus of impetigo.<sup>3</sup> In 1901 Sabouraud showed that there are two distinct varieties of impetigo—the impetigo contagiosa of Tilbury Fox, caused by the streptococcus but rapidly becoming infected by the staphylococcus, and the follicular impetigo of Bockhart due to a primary infection of staphylococci. In the case described by Adamson (p. 390) streptococci as well as staphylococci were found in portions of the crust from beneath the nail-fold of one of the affected fingers. Staphylococcic impetigo is closely allied pathologically to sycosis and boils, both of which conditions are caused by the *Staphylococci pyogenes aureus* and *albus*. The affection is not only contagious from one person to another, but is auto-inoculable, the finger-nails being the chief carriers of the infective material. It is a frequent complication of all conditions in which there is troublesome itching, notably of scabies and pediculosis. It is often a complication of vaccination.

The **diagnosis** rests mainly on the scabby appearance and discrete character of the lesions, the absence of hyperæmia around them, and the inoculability of the discharge. In favourable circumstances contagious

<sup>1</sup> *Monats. f. prakt. Derm.*, Bd. xxviii., 1899.

<sup>2</sup> *Brit. Journ. Derm.*, July, 1893, p. 202.

<sup>3</sup> *Bull. de l'Acad. de Méd.*, October 25, 1892.

impetigo tends to spontaneous cure in a few weeks, but repeated auto-inoculation may cause it to persist indefinitely.

Adamson<sup>1</sup> regards as possibly a very chronic form of impetigo a benign but most intractable eruption not seldom met with in children, and characterised by sharply circumscribed patches of a superficial dermatitis, distributed more or less symmetrically upon the face, trunk, and limbs. There is no bacteriological proof that the affection is related to impetigo contagiosa, as he frankly avows, and histologically it might be classed with Brocq's group of parakeratosis psoriasiformis, but the clinical evidence, in his opinion, points to a local microbic origin, and possibly a close relationship to impetigo.

The **treatment** of impetigo consists in the removal of scabs by soaking in *carbolic oil* or *carbolic acid lotion* (1 in 100) and the application of a *weak mercurial ointment*, such as *ung. hyd. ammon.* or *ung. hyd. nitratis dil.*, *sulphur*, or other *parasitocidal remedy*. The whole of the affected parts and the adjacent skin should be washed with a weak antiseptic, such as boric acid or carbolic lotion, as a measure both of cure and of prevention. Scratching should as far as possible be prevented. Inflammatory and other complications must be treated according to the indications. Weakly and ill-nourished subjects will be benefited, locally as well as generally, by cod-liver oil and iron.

**Sycosis** is an inflammatory process caused by staphylococcic infection, which affects the hairy parts of the face, and especially the chin. The disease may attack the eyebrows, the eyelashes, and the axillary and pubic regions in both sexes. The lesions are papules or nodules, which form round the hairs and develop into pustules, each of which is pierced by a hair. They

<sup>1</sup> *Brit. Journ. Derm.*, vol. **xxi**, p. 109, 1908.



gradually increase in number, and may extend over a large surface. The affection generally begins on the upper lip, and may remain limited to that region. As the suppurative process goes on the hairs are loosened, so that they are easily pulled out, a drop or two of pus generally following them. The pus dries into thin brown or yellow adherent crusts. In bad cases the pustules may be so thickly set together as to form infiltrations which may assume a fungating character. The process never extends beyond the limits of the hairy region. Sycosis does not generally cause baldness, because the papilla is seldom destroyed, the pus lying in a pouch formed by the lining membrane of the follicle and the outer sheath of the hair. The disease may last in varying degrees of severity for an indefinite period. In very chronic cases there is always a good deal of scarring from previous lesions, and occasionally cheloid may form in the scars. Brocq has described, under the name of *sycosis lupoides*, a variety of folliculitis which begins at the upper part of the whiskers and travels downwards; there is a narrow erythematous margin, and the process gives rise to marked infiltration, followed by cicatricial atrophy. Sycosis, of course, in its typical form is peculiar to adult males, but folliculitis of the same character may occur in hairy regions in women. The disease is contagious, as Brooke<sup>1</sup> has pointed out. It is often conveyed by the shaving-brushes of barbers who are not particular about the cleanliness of their implements.

Pathologically the affection is an inflammatory process starting in the hair follicles, each follicle being, in fact, converted into a small abscess. Sycosis is inoculable from one follicle to another by the transference of staphylococci. Tenderness or excoriation of the skin is probably a necessary condition for the develop-

<sup>1</sup> *Brit. Journ. Derm.*, Dec., 1889, p. 467.

ment of sycosis. The sebaceous glands are affected secondarily to the hair follicle; the sweat glands are only occasionally involved. The inflammatory nature of the disease, its origin in the follicles, and its limitation to the hairy parts of the face are characteristic. Eczema is not, as a rule, limited to the hairy parts, and the inflammation in that disease is seldom so severe as in sycosis. *Tinea barbæ* is distinguished by its commencement in a circinate scaly patch, by the early breaking of the hair, by the pain caused by extraction of the hair, by the shape of the pustules, which are conical and elevated, by the lumpy masses on the inflamed surfaces, and by its special fungus. Tertiary syphilitic ulceration is not limited to the follicles, and is associated with a history of primary infection and marks of previous or coincident specific lesions.

Sycosis is always extremely obstinate; and as recurrence after apparent cure is common, the practitioner must not be too sanguine in his prognosis. The **treatment** is to remove the crusts; then to epilate (a process which, owing to the loosening of the hairs by the pus, is not painful), and finally to apply soothing and antimicrobial remedies. The removal of the hairs opens the little abscesses, and the mouths of the follicles are thus made patent, so that remedies can penetrate to the seat of the disease. In mild cases *oleate of mercury* (1 to 2 per cent.) or *weak sulphur ointment* may be used. When the affection is more severe, *strong sulphur* or *resorcin paste* (10 to 20 per cent.) or Unna's *carbolic-mercury plaster mull* should be employed. In ordinary sycosis great improvement is brought about by short exposures to X-rays, but more radical results are obtained after epilation. The treatment must be applied with great care, the beard region being more sensitive to the rays than the scalp.

**Furunculi**, or boils, are inflammatory swellings

caused, as shown by Bockhart, by the action of the *Staphylococci pyogenes aureus* and *albus*. Their seat is either a follicle or a sebaceous or sweat gland. They may be single or multiple, in the latter case being scattered about without any attempt at grouping, and coming out in crops. In such circumstances the process may last a considerable time, constituting a condition to which the term "furunculosis" is applied. The lesion begins as a minute red papule, which is tender, so that the slightest movement causes pain. Soon induration can be felt, and the boil shows itself on the skin as a nodule of varying size, presenting the classical characters of inflammation. Resolution may take place within a few days, the boil subsiding without suppuration occurring. This constitutes the "blind boil." As a rule, however, it "points" more or less distinctly on the third or fourth day, the pustule being seated on an indurated base, surrounded by a raised red area. The inflammatory zone tends to increase, the skin on the surface of the boil becomes purple, tense, and glistening, and finally gives way, about the eighth day, in one or more places. The central part of the swelling is then seen to be occupied by a white pulpy slough ("core"), which is thrown off in a day or two. Before rupture the boil and the skin around it are exquisitely tender, and the heat, tension, and throbbing may make sleep impossible. Lymphangitis and lymphadenitis are often set up, and there is usually some amount of constitutional disturbance. After separation of the core the symptoms subside, and the resulting cavity heals up by granulation, a scar proportionate to the size of the boil being left.

A special form of boil which becomes developed in the sweat-coils has been described by Verneuil, Dubreuilh, and Pollitzer.<sup>1</sup> The last-named records a case in

<sup>1</sup> *Journ. Cut. and Gen.-Urinary Diseases*, Jan., 1892, p. 9.

which the cheeks, chin, parts of the neck, and upper part of the shoulder were the seat of successive crops of small tumours, which appeared one or two, or by the half-dozen, at a time. The crops came out at intervals of a few days to several weeks, and the process extended over eight months. The lesion began as a nodule deeply seated in the skin. The nodule was at first neither painful nor tender; it became in a fortnight as large as a pea, and slightly painful. The skin over it was red. If one of them were opened at this stage, a drop of pus exuded. If left untouched, after a few days a little pus was discharged, after which shrinking and cicatrisation took place, the whole process occupying about four weeks. Two nodules were excised and examined, when it was found that the tumours were evidently developed in the sweat-coils, the coil being, in the first instance, the seat of infiltration, and its intimate structure being finally lost. Pollitzer calls the affection "hydradenitis destruens suppurativa."

Boils may form on any part of the skin, but the parts most frequently affected are the face, the neck, the axillæ, and the buttocks. In the case of single boils local irritation, as by the edge of a stiff collar, or friction, is often the starting-point of the trouble, the slight injury of the tissues thus caused making the part susceptible to the action of the staphylococcus. If the patient is subject to boils, some underlying constitutional state, such as anæmia, lithæmia, or glycosuria, may be present. Furunculosis may also be a sequel of acute specific fevers, particularly smallpox, or it may be an expression of some septicæmic condition. Boils may multiply themselves by auto-inoculation, but this does not take place, as a rule, unless the patient is in a bad state of health, or local conditions favourable to the growth of the pus cocci exist. Boils are secondary in many skin affections, notably scabies and eczema.

The starting-point of the process is a hair follicle or sweat gland.

There can never be any difficulty about the **diagnosis**, the appearance and course of a boil being absolutely characteristic.

The **prognosis** is always favourable as regards the cure of any given lesion or set of lesions, but the affection is very apt to recur. Single boils are always amenable to treatment, but auto-inoculation of the pus often makes definitive cure somewhat difficult. In furunculosis the prognosis largely depends on the extent to which the underlying constitutional state can be remedied.

The **treatment** of single boils depends on the stage which the process has reached. When just commencing they may often be aborted by painting the part with *glycerine of belladonna*, or with *tincture of iodine*, three or four times a day; by dabbing with a saturated solution of *boric acid*; by the application of a compress steeped in *spirit of camphor* for a few minutes at a time several times a day; or by a solution of *nitrate of silver* or *strong carbolic acid*. Unna recommends the use of the *mercuric-carbolic plaster mull* as an abortive in the first stage, and as limiting suppuration to the centre, and causing speedy and painless rupture in the later stages. He says the rupture thus brought about is much smaller than could be made by incision, and soon closes under the plaster. In larger boils that have necrosed the plaster mull accelerates rupture, or, if an incision has already been made, shortens the time of healing and eases pain.<sup>1</sup>

When abortive treatment fails or is inapplicable, the boil should be incised and scraped out, and an antiseptic dressing—*iodoform*, *carbolic acid*, or *Unna's mercuric-*

<sup>1</sup> "Selected Monographs on Dermatology," New Sydenham Society; London, 1893; p. 88.

*carbolic plaster mull*—should be applied. As each boil may be a focus of further infection, it should be destroyed or rendered harmless by thorough antiseptis. For the same reason it is altogether unscientific to promote maturation by the application of poultices and fomentations. In the treatment of isolated furuncles of long standing, I have found radiotherapy efficacious.

Constitutional treatment may be required for furunculosis. Insanitary surroundings should be remedied and the health improved by measures appropriate to the special indications of the case, lithæmia, anæmia, glycosuria, etc., being dealt with on ordinary principles. The drugs most generally useful are iron, quinine, and large doses of diluted sulphuric acid. Duhring finds *arsenic*, given in doses of one to three minims three times a day, beneficial. Sulphide of calcium, which is given in doses of  $\frac{1}{2}$  gr. in a freshly-made pill thrice daily, is a most uncertain remedy.

Sir Almroth Wright's method of treating boils consists in injecting dead cultures of staphylococci in measured quantities. Having estimated the patient's opsonic index for staphylococci, 500 millions and upwards are injected about once in ten days, care being taken to allow the negative phase which follows the injection to subside before giving another injection. In this way the opsonic content of the blood is gradually raised, and in successful cases the boils are aborted, and the formation of fresh ones is prevented. Relapses are not uncommon, and it is often necessary to repeat the course of injections. The vaccine should if possible be prepared from the patient's own lesions. By giving small injections and allowing a sufficient interval to elapse between them, it is possible to carry out this treatment without estimating the opsonic index.

**Carbuncle** may be defined as a boil affecting several neighbouring glands. The process is akin to furuncle,



but is more severe in its local effects, and accompanied by greater constitutional disturbance. The lesion commences as an infiltration in the subcutaneous tissue or deeper parts of the true skin ; it is at first slightly raised, firm, rounded in outline, and bright red on the surface. In mild cases retrogression may begin at the end of a week, and complete resolution may take place. In most cases, however, the process extends, and in ten days or a fortnight forms a deep-seated, circumscribed swelling as large as the palm or larger, with a brawny base, the skin over it being of a purple colour. Softening takes place in the centre, and the surface becomes dotted with suppurating points, which break, giving issue to blood-stained pus. This cribriform mode of rupture is characteristic of carbuncle. The carbuncle often continues to spread even after the pus has found a vent. The skin between the holes sloughs, and the necrotic mass or core underneath slowly separates—taking from fourteen days to two months in the process—sometimes as a black, dry eschar, sometimes as a pultaceous mass, more frequently as a yellow, ragged slough, with a most offensive smell. The neighbouring glands are usually swollen. The process is accompanied by rigors, fever, aching in the back and limbs, and general *malaise*. Death may result, especially in elderly or weakly subjects, from septicæmia or exhaustion, especially when the lesion occurs on the face. After separation of the slough a deep, irregular cavity is left, which heals by granulation, a dense, puckered scar, which is not unfrequently pigmented, resulting.

Carbuncle is generally single, and occurs especially where the skin is thickest—on the nape of the neck, on the back, the buttocks, shoulders, and fore-arms. It is sometimes seen on the face.

Pathologically, the process is identical with that of furuncle, but the inflammation is deeper and more



destructive. It is generally believed to begin in the pilo-sebaceous follicles and sudoriparous glands.

The exciting cause of carbuncle is, as in furunculosis, an invasion of staphylococci. Men are more frequently attacked than women. Anything that tends to lower vitality may be a predisposing cause, diabetes in particular being often associated with the disease. It may, however, occur in persons apparently in perfect health.

The **diagnosis** of carbuncle can seldom be doubtful, the multiple yellow points and openings being sufficient to distinguish it from furuncle; and these features, together with its circumscribed outline, differentiate it from diffuse cellulitis.

A guarded **prognosis** should always be given in cases of carbuncle, especially when situated on the face, as death from septicæmia is not uncommon. The size and position of the swelling, and the age and state of health of the patient, are the chief points on which the prognosis must be based.

The **treatment** for small carbuncles is the same as for boils. The free painting of the surface with *glycerine of belladonna* will ease the pain, reduce the inflammation, and possibly bring about resolution. Unna recommends the application of a *mercury-carbolic plaster mull*, the parts being bathed with a solution of ammonia or alkali before a new plaster is applied. If the skin is about to break, crucial incisions should be made and the necrotic contents of the swelling cleared out with a sharp spoon. The cavity should be well scraped and all the friable tissue removed, and the cavity should be syringed out with some strong antiseptic solution such as *carbolic acid*, and finally filled with *iodoform*, subsequent treatment being on the accepted lines of antiseptic surgery. Constitutional treatment is always required. It should be directed to supporting the

patient's strength by every available means—liberal diet, careful regulation of the bowels, and the free use of tonics, especially *perchloride of iron and quinine*. If the pain is very severe morphia should be given, preferably in the form of hypodermic injections. Stimulants should be withheld till the slough has been cleared out, after which wine, such as port or burgundy, may be given with great advantage.

**Malignant pustule** is a disease caused by inoculation with the anthrax bacillus (Plate XXIII., Fig. 5); it corresponds to the splenic fever of animals. The inoculation gives rise to skin lesions followed by signs of constitutional infection. The most common site of inoculation is an exposed part of the skin, such as the face, the neck, or the hands. The development of the initial lesion is preceded by local itching and burning, and at the spot to which these sensations are referred a livid red papule soon appears. On this a bulla or a pustule quickly forms and soon breaks, drying up into a black gangrenous eschar fringed with tiny vesicles or pustules and surrounded by a wide zone of solid oedematous infiltration, the skin over which is tense and violaceous in colour. The gangrenous process may spread rapidly, the process soon ending in death; or it may be localised, in which case a slough is thrown off and the resulting sore heals by granulation. The constitutional symptoms are those of septic fever, to which the patient may succumb within a week or less. In less severe cases recovery takes place slowly.

The **etiology** of the disease is implied in its definition. Inoculation takes place from handling the hides of diseased animals, and butchers, wool-sorters, etc., are therefore most liable to infection.

The pathological process is local inflammatory reaction, followed by gangrene and general septic phenomena due to the introduction of a specific irritant,

the anthrax bacillus. This is a rod-shaped micro-organism which grows in the blood and all the tissues. In a case described by Hugo Herrmann<sup>1</sup> the bacilli were lying free in the lymph spaces, and none of them were found in the leucocytes or in any other cells—a fact which the writer notes from its bearing on the theory of phagocytosis.

The **diagnosis** rests on the presence of a gangrenous patch surrounded by infiltration in a patient whose occupation exposes him to infection with the bacillus of anthrax.

The **prognosis** depends on whether the gangrenous process continues to spread or not. The severity of the constitutional symptoms must also be taken into account. The mortality varies from one-third to one-half of those attacked.

The most efficacious **treatment** is the immediate and thorough excision of the initial lesion, or free scraping on the lines indicated for the treatment of carbuncle.

**Dissection wounds.**—The inoculation of septic material from a dead body, as when the hands are pricked or scratched in dissecting or *post-mortem* work, may give rise to pustules or small abscesses at the seat of injury, or to lymphangitis and cellulitis, which may be followed by pyæmia. The skin lesions must be treated antiseptically, and constitutional symptoms, if they arise, be dealt with on general principles.

**Acne** has been placed in this group, although its title to be looked upon as an inoculable affection in the strict sense is still not universally accepted. It is certainly the least inoculable of any of the diseases included in the group under consideration, but its pathological affinities with boils and other suppurative lesions in which staphylococci play a leading part make its provisional inclusion in the same category convenient.

<sup>1</sup> *Arch. f. Derm. u. Syph.*, Oct., 1902, p. 203.

Gilchrist<sup>1</sup> reports that he found definite bacilli, which he styles *Bacillus acnes*, in all smears taken from 240 typical acne lesions from 86 patients, and that pure cultures were yielded by 62 lesions (mostly acne nodules) from 29 patients. Of the remaining cultures 82 were sterile from use of an unsuitable medium, and the rest were contaminated by other organisms. The bacillus was found deep down in acne indurata, and was pathogenic in mice and guinea-pigs, and finally the bacilli were agglutinated by the blood-serum of patients affected with acne. He claims, therefore, to have proved that the *Bacillus acnes*—identical with the microbacillus of Sabouraud and of Unna—is the primary cause of acne vulgaris, and he suggests that the constitutional and other symptoms often associated with acne vulgaris may be caused by the toxins of that micro-organism. Acne is an inflammatory process in and around sebaceous glands, leading to the development of pustules and sometimes to scarring. The inflammation generally supervenes on occlusion of the duct. The plug causing the blockage may be the sebaceous secretion itself, associated with the presence of the microbacillus and hyperkeratosis of the mouth of the follicle (acne vulgaris), or some greasy material, *e.g.* tar, derived from without. The latter and other forms of artificial acne caused by drugs and chemical substances will be found described in the chapter on "Artificial Eruptions" (p. 215). The inflammatory process may also be due to local circulatory disorder, sebaceous obstruction being a secondary occurrence, as in rosacea.

In **acne vulgaris** the obstruction may be at the mouth of the sebaceous gland-duct, the plug being visible on the surface as a small black point (*comedo*), or in the gland itself, when the obstructing material is seen

<sup>1</sup> *Journ. Cut. Dis. including Syph.*, March, 1903 (abstr. *Brit. Journ. Derm.*).

as a tiny whitish mass in the substance of the skin (*milium*). Gilchrist found the comedo to be formed by a hyperkeratosis of the inner layer of the dilated hair-follicle, a change which was attended by dilatation of surrounding blood vessels. The primary lesion is a red papule, which may become pustular, the pustule being seated on a raised red base. In the papule, according to Gilchrist, the lower part of the distended follicle is surrounded with polynuclear leucocytes and nuclear detritus. The affection is met with in varying degrees of severity, from a few scattered papules to numerous lesions in all stages of development. The process may be arrested in any stage, some lesions undergoing involution, while others suppurate and in course of time rupture. The individual lesions, as a rule, run an acute course, but the affection as a whole is chronic, fresh crops of papules and pustules coming out as others disappear. The pus may be discharged without any visible scar being left, but where the suppuration has been extensive and deep, considerable scarring and consequent deformity form in the cicatrices (*acne cheloid*). In some cases the inflammatory process extends to the tissues round the sebaceous gland, and a hard red or purplish nodule is formed, which seldom ruptures, but leaves a livid indurated swelling, that slowly disappears (*acne indurata*). Sections of the nodules examined by Gilchrist showed profound changes extending deep into the corium, and in some cases surrounding a highly hypertrophied follicle. There were many giant cells (some containing bacilli), and either plasma cells or lymphoid or connective-tissue cells, besides polymorphonuclear cells, phagocytes and pigment cells.

The favourite situations of the lesions of acne vulgaris are the face, especially on the cheeks, nose, forehead, and chin, the back of the neck, the back between the shoulders, and the chest. The affection may, how-

ever, develop wherever there are sebaceous glands; thus it is sometimes seen on the back of the thigh and arms. The lesions are tender, but do not itch, and beyond the unsightly appearance the affection gives rise to no inconvenience. The skin between the lesions is usually more or less greasy.

The **predisposing causes** of acne comprise (1) an anatomical factor; (2) certain physiological factors; and (3) a bacteriological factor, although the exact measure of its importance is still somewhat doubtful. The anatomical factor consists of a structural coarseness of skin, which, from its excessive richness in large sebaceous glands, is naturally greasy and especially liable to retention of secretion. The physiological factors are (a) age, (b) reflex circulatory disorder. Acne vulgaris is essentially a disease of puberty, and as the time of the great physiological change indicated by that term varies within considerable limits, the age at which acne shows itself ranges from twelve to twenty-five years. With the advent of puberty certain glands undergo great and rapid development, and in particular there is a growth of new hair in certain parts. These changes in persons whose sebaceous glands are already inclined to over-activity are likely to be followed by plugging of the ducts, and consequent interference with the capillary circulation around the gland and tendency to inflammation. These conditions are increased by reflex circulatory disturbance due to the strain thrown upon the nervous system by the changes taking place at puberty, aggravated in many cases by disorder of the digestive organs, functional disturbance or irritation of the sexual apparatus, anæmia, and in some cases, probably, educational over-pressure. Lastly, the sebaceous matter plugging the duct becomes a suitable soil for micro-organisms. *Demodex folliculorum* (Fig. 5, c), which is found in comedones, appears to have no etiological importance.



In the suppurative stage staphylococci are present. According as one or other of the factors mentioned is preponderant, sub-varieties of acne may be produced.

The pathological process is an inflammation arising in the sebaceous glands in the manner already indicated, and in many cases running on to suppuration. Inflammatory changes are always present in the connective tissue around the follicle. When suppuration occurs, the pus may, if slight in amount, escape by natural drainage through the duct, and the gland may in this way escape destruction; usually, however, both the gland and the follicle are destroyed, and more or less of the perifollicular tissue undergoes necrosis, with consequent scar-formation. In acne indurata there is fibrosis for some distance around the follicle.<sup>1</sup>

Acne vulgaris can, as a rule, be recognised without any difficulty by the presence of comedones, the discrete character of the eruption and its distribution, and the patient's age. Artificial acne must be excluded by inquiry into the patient's occupation and recent medical history. Rosacea is most common in middle life, chiefly affects the "flush area" of the face, and is markedly congestive in character, dilatation of superficial vessels being a conspicuous feature. Pustular syphilides are generally grouped, which is never the case with acne pustules, and there is other evidence of the disease.

Acne vulgaris, even if left untreated, tends in the course of years to disappear. The duration of the affection can, however, generally be considerably shortened by treatment.

The **treatment** is preventive and curative. Patients the texture of whose skin predisposes to retention of the

<sup>1</sup> As to the relation of comedo to acne, and the bacteriology of acne, cf. Unna's "Histopathology of Skin Diseases" (Eng. trans.), p. 371; article by Sabouraud: *Ann. de Derm. et de Syph.*, t. vii., 1896, pp. 253, 460, 667, 824, and t. vii. p. 257.



sebaceous secretion should wash thoroughly several times a day, with the object of clearing away the coarse epidermis, keeping the mouths of the ducts open, and stimulating the circulation. The face and other parts liable to attack should be vigorously scrubbed with soap and flannel. As a further measure of prevention, some stimulant and parasiticide ointment should be rubbed in; for this purpose *sulphur ointment* (10 grs. to the ounce) is very useful. The general health must at the same time be attended to. Alcohol, tea, coffee, and all stimulating food that causes reflex flushing of the skin should be avoided. Smoking and sexual excitement are likely to be injurious for the same reason.

Curative treatment includes local and general measures. If suppuration has not yet occurred, the comedones should be squeezed out by means of an instrument suitable for the purpose; the part should then be washed frequently and energetically with soft soap and coarse flannel. A mixture of spirit and soap, such as the *spiritus saponis alkalinus* of Hebra, is useful in dissolving and softening the sebaceous matter. The skin should be disinfected by applying *sulphur ointment* (grs. xx to ʒj), *resorcin* (grs. xv to ʒj of *ung. paraffini*), *ichthyol*, or *carbolic acid* in the form of ointment. When suppuration has occurred, the pustules should be punctured or incised, and afterwards bathed with hot water so as to encourage bleeding, and then dressed antiseptically. The cavity may with advantage be touched with strong carbolic acid solution. Each pustule must be treated individually; the method requires perseverance, but is effectual. When the inflamed papules are of considerable size, each one should be isolated by covering it with Unna's *mercury-carbolic plaster mull*. This should be left on for about twelve hours or more; after removal the part should be cleaned

with cotton wool, soaked in spirit, then washed with *corrosive sublimate solution* (1 in 2,000), and covered with a fresh piece of plaster. In all cases of acne of the body, reinfection from the clothing should be prevented by frequent changes of the garment worn next to the affected part, and washing the adjacent unaffected skin with an antiseptic wash or soap. Many observers have testified to the efficacy of treatment by the X-rays, and though in my experience relapses are not uncommon, even the most severe cases yield to the treatment if it is sufficiently prolonged. Finsen and others have reported favourable results from the light treatment.

Constitutional treatment must be directed to the rectification of any functional disorder that may be a possible source of reflex circulatory disturbance. Particular attention must be paid to the diet on the lines already laid down in speaking of prevention. As chronic constipation is often associated with acne, the judicious combination of mild aperients with tonics is of great service. The following mixture, two tablespoonfuls of which should be given after meals twice or three times a day, may be recommended:—

R Mag. sulphatis	..	..	..	..	℥iv
Ferri sulphatis	..	..	..	..	gr. viij
Quiniæ sulphatis	..	..	..	..	gr. viij
Acidi sulphatis dil.	..	..	..	..	℥j
Sp. chloroformi	..	..	..	..	℥i
Infus. quassiae ad	..	..	..	..	℥viij

A pill of cascara, aloes and nux vomica may be given at bed time, instead of the mixture.

Careful regulation of the mode of living is of importance. The patient should be instructed to wear suitable clothing—that is to say, such as keeps the body comfortably warm without causing irritation—to take proper exercise, to bathe frequently (the Turkish bath being

especially useful for those whose internal organs are sound), and to live a wholesome life in hygienic surroundings.

**Acne varioliformis** is a somewhat rare form of acne, characterised by red, flat papules, which become pustular, and then dry up, forming scabs. The latter are at first limited to the centre of the lesion, which is depressed below the level of the periphery. Later the scab covers the whole surface of the papule, and on separating it leaves a small depressed permanent scar resembling a small-pox "pit." This process is regarded by some as a local necrosis; hence the affection is sometimes called *acne necrotica*. A distinctive feature of this affection, as compared with *acne vulgaris*, is that the lesions are grouped. The forehead is the part most commonly attacked, but the scalp and the face may be the seat of the eruption, which has also been seen on the chest and back. The affection causes no inconvenience beyond a little itching and the unsightliness of the lesions when they are on the face. Both sexes seem to be equally liable to this form of acne; it is rare under the age of thirty. Some authorities consider it to be connected with syphilis, but with this view I do not agree. According to Touton, the process is inflammatory, and leads to necrosis of the cutis and overlying epidermis. In a case in which he made careful observations, he found four species of micro-organisms, but he is inclined to look upon their presence as secondary, and probably determined by the antecedent changes in the integument.<sup>1</sup> Sabouraud ascribes the disease to a secondary invasion of the seborrhœic cocoon, produced, as in ordinary acne, by the *staphylococcus aureus*.

*Acne varioliformis* can be identified by the absence of comedones, by the grouping of its lesions, the pitting

<sup>1</sup> *Brit. Journ. Derm.*, 1892, p. 265.

which it leaves, and its preference for the forehead (which is so marked that it is sometimes called *acne frontalis*).

Among other rare varieties of acne may be mentioned one described by Tilbury Fox as *disseminated follicular lupus*, but evidently having little or no affinity with the lupous process. According to Crocker,<sup>1</sup> who saw the cases, the lesions were very like those of what is now known as adenoma sebaceum, but more conical and disseminate, and not massed together at the naso-labial fold. Microscopically, there was fibro-cellular infiltration, chiefly in and around the sebaceous glands. The only **treatment** of any use was the careful application of acid nitrate of mercury. Another rare form of acne is described by Crocker<sup>2</sup> under the name of *acne keratosa*. It resembles an acne in which the place of the comedo is taken by a horny plug, the presence of which excites inflammation. This plug is apparently formed in the hair follicle instead of in the sebaceous gland. The eruption is situated about the nose, cheeks, and forehead, on the neck, the extensor aspect of the upper limb, and on the thigh. The lesions, when fully formed, are inflamed, indurated nodules, with a flattish top, which soften in the centre almost like a carbuncle, the central mass, however, being slow in separating. In all of the five cases digestive disturbances were present, and in three very prominent, and treatment had no particular effect.

**Treatment** must be directed to the improvement of the general health. Iron and cod-liver oil are particularly useful. The local treatment is that recommended for acne.

**Acnitis.**—The condition described under this name

<sup>1</sup> "Diseases of the Skin," 3rd edition, 1903, p. 1094.

<sup>2</sup> *Op. cit.*, p. 1090.

by Barthélemy<sup>1</sup> is probably a form of hydradenitis akin to that described by Pollitzer under the name of "hydradenitis destruens suppurativa" (p. 397). By Kaposi it is styled "acne teleangiectodes." W. Pick,<sup>2</sup> describing two cases, holds that the affection is not identical, as some have supposed, with the lupus follicularis disseminatus of Tilbury Fox, that it differs from folliculitis, that there is no evidence of its being tubercular, and that it may possibly be connected with the sweat glands.

**Perlèche.**—Under this name Justin Lemaistre described for the first time, in 1885, a variety of chronic stomatitis affecting the lips, chiefly at the commissures. The disease is almost peculiar to childhood. The lesions, which are generally symmetrical, consist of an exuberance of the epithelium, whitish in hue, which looks as if it were macerated, and is easily detached. The lesion sometimes extends some way across the lip. The derma is not exposed, the affection being limited to the epithelium. The characteristic feature is a kind of whitish pellicle, projecting and wrinkled about the corners of the lips, which have thus a fissured appearance. There is often only a single patch, divided by the fissure into two equal parts so as to present the appearance of the two pages of an open book (P. Raymond). In other cases the patch is multiple, and may extend to the inside of the lip at the commissure. There is little or no pain, but a feeling of discomfort and heat which makes the child constantly lick its lips (*pour-lécher*; hence the name *perlèche*). When the fissures extend deeply, however, they sometimes reach the derma, and pain is felt on opening the mouth. Other lesions are often associated with *perlèche*—diphtheroid or impetiginous stomatitis, crusts, vesicular erythema,

<sup>1</sup> *Ann. de Derm. et de Syph.*, Jan., 1891.

<sup>2</sup> *Arch. f. Derm. u. Syph.*, Nov., 1904, vol. lxxii., p. 193.

etc. It has been suggested that these are all manifestations of one disease:

The duration of *perlèche* is usually from a fortnight to a month; sometimes it lasts longer, possibly, as suggested by Lemaistre, as the result of successive inoculation. It tends to spontaneous recovery, but leaves behind a smooth, mother-of-pearl tinted surface, which may persist for months. Relapse is common. The diagnosis is easy, the only difficulty being to distinguish *perlèche* from syphilitic lesions. It is well to regard all children presenting the lesions described as affected with syphilis till it is clearly established that there is no syphilis.

*Perlèche* is said by Lemaistre to be caused by the *Streptococcus plicatilis*, which was found in all cases examined, and which he successfully cultivated. According to Sabouraud, it may be due to a streptococcic salivary infection, or accompany streptococcic impetigo of the face. Others have attributed the affection to a variety of the staphylococcus albus, to the staphylococcus aureus, and to any of the microbes present in the mouth. It is admitted by all that the disease is contagious and may be epidemic. Hence care should be taken to prevent the common use of pencils, drinking mugs, towels, etc., in schools. The **treatment** consists in cauterisation with sulphate of copper or nitrate of silver, followed by the application of a protective ointment of vaseline and oxide of zinc.<sup>1</sup>

Under the name **labiomycosis** Willmott Evans describes an affection in children resembling *perlèche*, but, he holds, distinct from it and from eczema, both clinically and etiologically. It attacks the labial skin rather than the mucous membrane, and in the case of

<sup>1</sup> For a fuller account of *perlèche* (by Jacquet) see Brocq's "Pratique Dermatologique," t. iii., p. 839 et sqq. Paris, 1902.



which he gives details the child had formed the habit of licking her lips, as in *perlèche*. Among the epithelial scales scraped from the affected surface he found mycelium in such large quantity as to satisfy him that the organism was the cause of the lesions, although attempts at cultivation were "not very satisfactory." In twenty other cases he found the same organism present, but in many others, less well marked, there was but scanty mycelium. The weakest antiseptic ointments sufficed to remove the disease in a few days.

**Furunculus orientalis** (Delhi boil, Aleppo boil, Biskra button) is a tropical disease the lesion of which is a boil that breaks down, forming a foul ulcer. The process is unattended with constitutional disturbance. It has been proved to be inoculable both in men and in animals, but the particular parasite responsible for its production has not yet been identified. There is some evidence that the poison is water-borne, and is conveyed into the system either by drinking or washing. The treatment is the same as for boil or carbuncle.<sup>1</sup>

**Pinta**, *carate*, or "spotted sickness," is an affection endemic in the tropical regions of America. It is characterised by a peculiar discoloration of the skin, with continuous desquamation. Four forms of the affection are described—grey, blue, red, and white—but they are all varieties of the same process. The disease is probably caused by a fungus, though some authorities are more inclined to attribute it to a bacillus.<sup>2</sup> In the grey—also called the black—variety, spots of a leaden hue appear on the face, the tint deepening almost

<sup>1</sup> For a further account see a paper by J. Murray, *Trans. Epidem. Soc.*, 1883, p. 90.

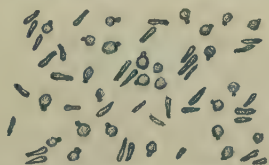
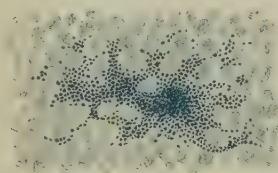
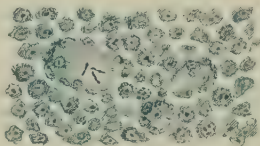
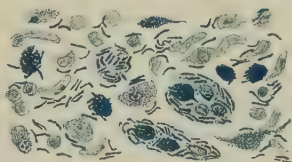
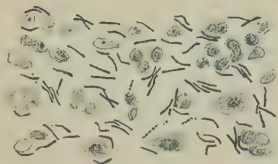
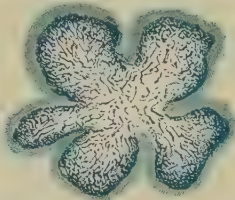
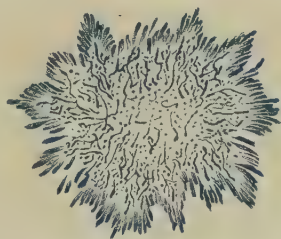
<sup>2</sup> See a "Report on Carate to the Hygienic Committee of the Department of Cauca, Republic of Colombia," published in the *Boletín de Medicina del Cauca*, March, 1893. On this report the description of the disease here given is largely based.



PLATE XXIII.

- FIG. 1.—ACTINOMYCES.
- FIG. 2.—FUNGUS OF MADURA FOOT.
- FIG. 3.—TUBERCLE BACILLI (LUNG).
- FIG. 4.—LEPROSY BACILLI FROM SKIN.
- FIG. 5.—ANTHRAX BACILLI.
- FIG. 6.—TUBERCLE BACILLI IN GIANT CELLS OF LUPUS.
- FIG. 7.—STAPHYLOCOCCI IN PUS.
- FIG. 8.—STREPTOCOCCI IN ERYSIPELAS.
- FIG. 9.—BOTTLE BACILLI IN ECZEMA.
- FIG. 10.—FILARIA SANGUINIS HOMINIS.







to black as they spread. The spots are irregular in shape, slightly scaly, and do not disappear on pressure; the discoloration cannot be rubbed off. The whole face may be blackened, making the patient look like a negro, but usually there are patches of normal or less discoloured skin. Patches of discoloration also appear on the limbs, especially in the parts rich in pigment and most exposed to the sun, such as the external surfaces of the arms and legs, the dorsum of the foot, the back of the hand, the extensor aspects of the joints, etc. The trunk may also be the seat of similar lesions, but the whole of the skin is never invaded. Sometimes there is considerable itching, and then desquamation is more active. After a time the affected surfaces become harsh and rough, and the skin appears to be thickened and more vascular than normal. In this stage the patients often give off a penetrating, musk-like odour. There is no sensory or other functional alteration in the skin.

The blue variety also affects the face and the limbs. The spots, which are more irregular in outline than in the grey variety, are of a bluish tint, sometimes of a leaden-grey shade, sometimes violet, sometimes dark indigo blue. The discoloration in some cases occurs in numerous small patches, giving the patient a "spotted" appearance; in others it is diffused so generally over the body that the prevailing colour of the skin is blue. Tier<sup>1</sup> denies the parasitic origin of the disease, and considers that it is the attempt of Nature to render man's skin suitable to tropical climates. He believes that the pigmentary changes are akin to those caused by sunburn.

In the red variety, which attacks by preference fair persons with a delicate skin, the distribution of the lesions is the same as in the two already described, but

<sup>1</sup> *Journ. des Mal. Cut. et. Syph.*, June, 1897.

the patches of discoloration are smaller. The affected parts are blood-red, or sometimes of the colour of beet-root. The skin is rough and vascular, and is often marked with fissures, which bleed easily. Itching is intense; the skin is dry and hyperæsthetic. This variety is the most contagious. It is often associated in the same person with the two previously described.

The white variety is the terminal stage common to all the others. The spots of discoloration begin to fade in the centre, and gradually die away to a perfectly white tint, especially in parts where the skin is thin, as on the extensor surfaces of joints. In rare cases the spots are yellowish from the first, and soon pass into the white stage without ever having been red, blue, or grey. In such cases the disease is limited to certain regions, such as the roots of the hair, the parts about the eyes, and the hands and feet.

There is some doubt whether the disease was imported into America from Africa by the negroes, or whether it is indigenous. At the present day it is so generally prevalent among negroes that it has been said that none of them escape it.<sup>1</sup>

The physicians of Colombia are almost unanimous in looking upon the affection as not directly contagious. They believe, however, that it is probably parasitic, though the micro-organism, whether fungus or bacterium, has not yet been identified. In the regions where it is endemic there is a general belief that the inoculative material is conveyed by mosquitoes. A tropical climate, dirt, and pre-existing inflammation of the skin are pre-disposing factors. Both sexes are equally liable to attack, and no age, except early infancy, is exempt. The affection is rare among well-to-do people.

<sup>1</sup> In the official document already referred to the following words occur: "*Puede decirse que todo negro es caratoso o lo será.*" ("It may be said that every negro suffers or will suffer from spotted sickness.")

**Diagnosis.**—The disease may\* be mistaken for macular leprosy, but there is no anæsthesia, and the spots do not fade and reappear as in that affection. From leucodermia it is differentiated by the variety of the pigmentation, the itching, and the roughness of the skin. From tinea versicolor it is distinguished by the coloration, and by the distribution of the patches, which are mostly situated on parts of the skin exposed to the light, whereas the *Microsporon furfur* affects covered regions such as the chest and abdomen.

The **treatment** is the same as that recommended for tinea versicolor (p. 388), or chrysarobin may be tried. With regard to prevention, close contact with patients suffering from the disease should be avoided; and in regions where it is endemic the local practitioners recommend that mosquito stings should be at once treated with an antiseptic application, such as carbolised oil, boric acid ointment, etc. The question of *carate* in Colombia seems to be in much the same position as that of leprosy in India. The report which I have quoted was presented in compliance with a request from the Government, which, in view of the increasing prevalence of the disease, wished to know whether measures of segregation would be advisable.

**Mycetoma** (Madura foot; fungus foot of India) is endemic in some parts of India, especially in Madura. It occurs in two chief varieties, black and pink, or, as Vandyke Carter prefers to call them, "melanoid" and "ochroid." The pink form is the more common. The distinctive feature of the black variety is the presence in the affected tissues of black granular particles resembling gunpowder in the earlier stages, and in later stages of black or dark-brown truffle-like masses. The latter exhibit a faint pink mould in the earlier stages of development, and at a more advanced period characteristic pale-red, ovoid bodies resembling fish-roe. The pink



mould is also visible in the pink variety of mycetoma. The disease as a rule affects the foot or the leg, sometimes the hand; in rare cases the shoulders and the scrotum. On the foot it begins with slight swelling and redness or local induration. In an advanced stage of the disease the foot is greatly swollen, the swollen surface being dotted with little nodules, in each of which is the opening of a sinus, from which comes a thin sero-purulent discharge containing rounded granules. Similar granules are visible on the little tumour around the mouth of the sinus. The pathology is simply disintegration of the foot by the fungus. Brumpt,<sup>1</sup> who has thrown much new light on the parasite, distinguishes eight different kinds of mycetoma, one of them caused by *Discomyces bovis*, the ray fungus, a second by *D. maduræ*, and two others by *Aspergillus nidulans* and *A. Bouffardi*, while the remaining four are also probably due to species of *Aspergillus*. How they effect entrance is not known, but it may not improbably be through abrasions of the skin.

Potassium iodide has been used with benefit in some forms of the affection, but amputation is usually necessary. In the absence of treatment, the disease progresses slowly to a fatal termination.<sup>2</sup>

**Actinomycosis** (Plate XXIV.) is a parasitic disease which chiefly affects the bones and the viscera, and only in rare cases the skin, but a case of primary actinomycosis of the skin has been reported by Wilhelm Dreyfus<sup>3</sup> and another by A. Sichard.<sup>4</sup> In the latter case infection resulted from the skin of the left index finger being cut by a spike of corn, and there was rapid extension of

<sup>1</sup> *Arch. du Parasitologie*, Trans. x., 1906.

<sup>2</sup> For further information as to Madura foot, see Manson: "Tropical Diseases" 4th edition (1907). †

<sup>3</sup> *Münch. med. Woch.*, Dec. 29, 1903, p. 2291.

<sup>4</sup> *La Presse Méd.*, Aug. 15, 1903.



PLATE XXIV.—ACTINOMYCOSIS.



ulceration to the deep parts, the muscles and aponeuroses being destroyed and the periosteal and bony tissue being affected. The cause of the lesions is the ray fungus, which is believed to be derived from corn or hay. It may be conveyed to man by the sucking of straws, and especially the picking of carious teeth therewith, or by contagion from cattle or horses themselves suffering from the disease, or, in very exceptional cases, from man to man. Deep-seated suppurating tumours are produced in bone or others of the deeper structures, and as these enlarge they gradually approach the surface, the skin over them presenting the usual appearance characteristic of abscess. The process is very chronic, and there is comparatively little pain. In course of time the skin breaks and sero-sanious or purulent fluid, containing peculiar sulphur-yellow granules, is discharged. If these granules are examined microscopically, the actinomyces, the ray-like fungus causing the disease, will be found (Plate xxiii., Fig. 1). Males are, from their greater exposure to infection, more liable to the disease than females. Pathologically, actinomycosis is an inflammatory process excited by the ray fungus, which occasionally involves the skin. The **diagnosis** will be made clinically by a process of exclusion. A tumour, especially if situated in the skin near the jaws, which presents neither the characters nor the symptoms of a malignant growth, a syphilitic gumma, a glanderous abscess, or lupus, should suggest the idea of actinomycosis, and a positive conclusion will be reached by puncturing and examining the contents for the actinomyces. The **prognosis** depends on the situation of the lesions. If these can be thoroughly removed the disease can be cured; otherwise it will end in death.

Actinomycosis can sometimes be cured by the internal administration of *iodide of potassium* alone: The earlier this is begun the surer and speedier is the effect.

Beginning with 10 or 15 grains three times a day, it should be steadily pushed to 20, 30, 40 grains, or even larger doses if necessary. Iodide of potassium (1 in 100) may also at the same time be injected into the sinuses and fissures. Surgical treatment is, however, generally required. This consists in the completest possible removal or destruction of the diseased tissues.<sup>1</sup> In a case in which iodide of potassium was not well borne, Zeisler, of Chicago,<sup>2</sup> found that the affection was cured, at least *pro tempore*, by X-rays combined with the internal administration of sulphate of copper.

**Streptothrix infection.**—Foulerton<sup>3</sup> has described a case which he regards as an example of an infection by a streptothrix other than the ray fungus, while clinically it presented nearly all the features of ordinary actinomycosis. The patient was a woman aged forty-six, who had suffered from an abscess in the left axilla, which had been opened surgically, a sinus running inwards and upwards for nearly five inches being left. After a time a red painful lump appeared above the left clavicle; this rapidly increased in size, and the skin over it soon broke. When seen there was ill-defined induration round about, and there were a few secondary lumps near the original one. The skin over the swelling was of a deep reddish, and in some places purplish, colour; it was dotted here and there with yellow spots varying in size from somewhat larger than a pin's head to a small pea. These spots marked the position of small abscesses, each of which contained a little thick yellowish pus. In places where these abscesses had broken,

<sup>1</sup> See a report of a case of actinomycosis (Plate xxiv.) involving the skin, by the author (*Lancet*, June 6, 1896), to which a full bibliography up to date is appended. Poncet, of Lyons, has more recently published a comprehensive monograph on the whole subject.

<sup>2</sup> *Trans. Amer. Derm. Assoc.*, 1906, p. 104.

<sup>3</sup> *Brit. Journ. Derm.*, November, 1899, p. 417.

small punched-out ulcers remained, from which a thin, blood-stained, purulent discharge exuded. There were physical signs of lung disease. No treatment had any effect, the skin lesion gradually extending over the back of the left shoulder. The clinical evidence pointed to a primary lesion of the left lung, followed by extension of the infection through the chest wall to the skin. After a stay of four months in the hospital, the patient left, and at the date of the report nothing more had been heard of her. Pure cultures of a streptothrix fungus were obtained from the pus of a freshly opened abscess. Although, owing to the difficulty in obtaining free growth of the fungus, its natural history when growing on artificial media and its pathogenicity in animals were not fully worked out, the evidence was, in Foulerton's opinion, quite sufficient to show that it did not correspond with any of the previously described streptothriceæ. More recently Hayo Bruns, of Strassburg, has published a case which clinically was thought to be one of actinomycosis, but from which he isolated a streptothrix fungus corresponding in some respects with that described by Foulerton.

A list of these streptothriceæ will be found in Foulerton's article. He makes the general statement that the anatomical results of an infection by any one of these usually appear as nodules of granulomatous tissue.

**Sporotrichosis.**—Several cases of this disease have been described by American and French observers.<sup>1</sup> It begins with the development of subcutaneous nodules, which in two or three months soften to form abscesses with fistulous openings, discharging a greyish yellow homogeneous pus. The infection may be simple, as in the cases reported by Schenk,<sup>2</sup> and Hektoen and

<sup>1</sup> H. G. Adamson gives a good resumé of the subject with literature, *Brit. Journ. Derm.*, Sept., 1908, p. 296.

<sup>2</sup> *Johns Hopkins Hosp. Bull.*, 1898, p. 286.

Perkins<sup>1</sup> in America, in each of which the primary lesion occurred on the index finger and was followed by a train of abscesses along the line of the lymphatics, or multiple as in the cases of de Beurmann and Gougerot,<sup>2</sup> Gaucher and Monier-Vinard, Dor, and others, the abscesses being widely distributed over the body. In some of the cases lesions occurred in the mucous membranes, but the viscera do not appear to be involved. The fungus (*Sporotrichium Beurmanni*) occurs as short or oblong rods 2 to 5  $\mu$  in length and 1 to 3  $\mu$  in breadth, and is found with difficulty. Cultures are readily obtained, the best medium being Sabouraud's peptone-glucose-agar. Colonies appear on the fourth to sixth day as small white acuminate points 1 mm. in diameter, surrounded by a white, finely-rayed areola, and become brown in colour and convoluted as they increase in size. The fungus has been grown upon caterpillars, flies, larvæ, etc., and upon vegetable substances such as lettuce leaves. It has also been successfully inoculated into animals.

Both clinically and histologically the lesions resemble those of either syphilis or tuberculosis. They have been found refractory to ordinary surgical measures, but rapidly disappear under the administration of iodides.

**Blastomycetic dermatitis or cutaneous blastomycosis.**—At the meeting of the American Dermatological Association in 1894 T. Caspar Gilchrist, of Johns Hopkins Hospital, Baltimore, demonstrated organisms in a case of supposed scrofuloderma under the care of Duhring. Gilchrist suggested that these organisms were parasitic fungi having an etiological relation to the lesions in connection with which they were found. Two years later the same observer pub-

<sup>1</sup> *Journ. of Exper. Med.*, 1900, p. 77.

<sup>2</sup> *Ann. de. Derm.*, 1906, pp. 837, 914, 993.



lished<sup>1</sup> a case of "blastomycetic dermatitis" in man, in which he classified the fungus as one of the yeast family. In conjunction with W. R. Stokes, Gilchrist published in 1898 a report of a case of "pseudo-lupus vulgaris" caused by a blastomyces, in which the results of experimental researches on animals were given. The elements of the organism were described as spherical and unicellular, with a double-contoured enveloping membrane, exhibiting budding forms in various stages and never enclosed in cells. A careful study of the skin disease caused by this blastomyces has been made by Nevins Hyde, L. Hektoen, and A. D. Bevan,<sup>2</sup> who collected all the cases recorded up to the date of their article, and compared and analysed the facts and phenomena, but other cases have since been reported by Gilchrist, Meneau, and others, and by 1904 over forty cases were on record. Blastomycosis in its wider sense as an affection of the internal organs and structures as well as of the skin forms the subject of a monograph by Dr. Buschke in the *Bibliotheca Medica*.<sup>3</sup>

As far as the symptomatology can be gathered from the cases on record, the affection begins as a maculopapule of reddish hue, which afterwards suppurates, usually as the result of accidental infection. The papules gradually enlarge into tubercles, and the skin over the area involved by the growth becomes raw and ulcerated; the ulcers spread widely, and sometimes extend deeply, destroying parts like the ala nasi and the lip. The ulcers leave scars with raised ulcerating edge, and small ulcers are scattered irregularly over the scar area. The parts affected are the ear, forehead, cheek, brow, nose, scrotum, thigh, leg, and the dorsum of the fingers, hand, and wrist. The parts first attacked are chiefly

<sup>1</sup> "Johns Hopkins Studies in Dermatology," 1896.

<sup>2</sup> *Brit Journ. Derm.*, July, 1899.

<sup>3</sup> See the *Brit. Journ. Derm.*, Feb., 1903.

the dorsum of the hand and the front of the leg, a circumstance which suggests that these regions infect each other. In the seven cases collected by Nevins Hyde, Hektoen, and Bevan, five of the patients were men, all of them at or near middle age; in some of them there was a family history of tuberculosis. The disease, which is most often met with in America, and especially in Chicago, runs a chronic course, lasting from five to ten years. Meneau<sup>1</sup> attempts a division of cutaneous blastomycosis into two groups, the parasite in one being a yeast, in the other a mould.

Blastomycetic dermatitis closely resembles tuberculosis of the skin, especially that form described by Riehl and Paltauf under the title "tuberculosis verrucosa cutis" (see p. 441). The vegetating forms of syphilis sometimes slightly resemble the symptoms of blastomycetic dermatitis. The nature of the disease is recognised by the presence or absence of the blastomyces. From Darier's disease and other psorospermoses, in which the etiological factors are coccidia, blastomycetic dermatitis may be distinguished by attention to the following points of difference enumerated by Gilchrist: (1) The protozoa develop by sporulation, whereas the plant forms develop by gemmation or budding; (2) the former are larger,  $16\mu$  to  $30\mu$ , as contrasted with the  $10\mu$  to  $20\mu$  of the blastomyces; (3) the protozoan bodies are found single or in groups, while the blastomyces are often seen in pairs. The features common to both protozoal and blastomycetic affections are: Epidermal hypertrophy; the occurrence of multiple abscesses in both epidermis and corium; a similar distribution of lesions; and, principally, the general features of both scrofuloderma and tuberculosis of the skin. In a case reported by Sequeira,<sup>2</sup> and shown at the Dermatological Society

<sup>1</sup> *Ann. de Derm. et de Syph.*, June, 1902, p. 578.

<sup>2</sup> *Brit. Journ. Derm.*, April, 1903, p. 121.

of London in 1902, the organism found in the lesions was much smaller than that found in the American cases. It was impossible to cultivate it, owing perhaps to the fact that the lesions examined were already infected with cocci. Sequeira suggests that the organism may have been a different species of blastomyces from those described by Gilchrist, Montgomery, and other American workers.

An interesting case of *systemic blastomycosis* with multiple cutaneous and subcutaneous lesions is reported by Oliver S. Ormsby and H. H. Miller, of Chicago.<sup>1</sup> The cutaneous manifestations began two months after an affection of the lungs, and were obviously of internal origin, the infection reaching the skin through the circulation. The subcutaneous abscesses and (after death) various tissues and internal organs yielded pure blastomycetic cultures, and though the early implication of the lung and other symptoms, the microscopic appearance of the internal organs and the family history suggested tuberculosis, it was proved by all the tests that that affection was absent.

As far as can be judged from the slender basis of statistics at present existent, the prognosis in blastomycetic dermatosis is good, most of the cases ending in recovery. Treatment by the internal administration of *iodide of potassium* has been successful in causing the disappearance of patches (Bevan, Shepherd, Sequeira). Shepherd<sup>2</sup> gave the drug in *doses of gr. xx thrice daily*. After a month of continued treatment, great improvement resulted. A further course of the same treatment effected a cure. Sequeira<sup>3</sup> gave five and then ten grain doses three times a day, but there was no marked improvement until the quantity had been increased to

<sup>1</sup> *Journ. of Cut. Dis., including Syph.*, March, 1903.

<sup>2</sup> *Journ. of Cut. and Gen.-Urin. Dis.*, April, 1902.

<sup>3</sup> *Loc. cit.*

105 grains a day, when the sizes of the lesions diminished, and many of the smaller ones cleared up altogether. After further improvement the patient insisted upon leaving hospital, and escaped observation.

Meneau<sup>1</sup> reports that cases that fell into his first



Fig. 6.—Elephantiasis of Foot of a Mulatto woman, born in Surinam (Guiana), South America,

(Dr. Spitzley's Case.)

group—those in which the parasite is a yeast—are more amenable to iodide treatment than those forming the second group, though the disease is more virulent and its course more rapid.

**Elephantiasis Arabum** is a disease of tropical and sub-tropical countries, only very rarely seen in

<sup>1</sup> *Ann. de Derm. et de Syph.*, June, 1902, p. 578.

Europe. It is characterised by chronic hypertrophy of the skin and subcutaneous tissue, giving rise to enormous enlargement of a particular part of the body, generally one (Fig. 6), and in rare cases both, of the lower limbs; sometimes it is the scrotum (Fig. 7),



Fig. 7.—Elephantiasis of Legs and Scrotum; Right Arm slightly affected.

*(From a photograph by Dr. Turner, Samoa.)*

one of the labia, or the mamma (Fig. 8). The face is occasionally the seat of the disease. It is often ushered in by febrile disturbance ("elephantoid fever"). The part attacked becomes rapidly swollen, owing to inflammation of the lymphatics, the skin being tense and red as in erysipelas. There is great infiltration of the areolar tissue, and vesicles and bullæ often form and

discharge a serous or chyle-like fluid. When fully developed the limb is often three or four times its natural size (Fig. 7), the swelling being hard and solid for the most part, though pitting moderately under strong pressure. The surface is often roughened by a network of dilated lymphatic vessels; varicose ulcers also frequently form. Exacerbations may take place at irregular intervals, their occurrence always being heralded by febrile disturbance. Except at these times there is generally little pain, but the patient is greatly inconvenienced by the bulk of the affected part. After some years the attacks of fever cease and the part remains permanently swollen. The scrotum sometimes forms a tumour reaching quite to the ground, and weighing over a hundred pounds. Cutaneous lesions of an eczematous type, which give rise to much itching, are frequent complications. The tension is often so great that the integument gives way and milky fluid escapes. The patient is much weakened by the loss of this fluid.

The condition is the result of plugging of the lymph channels of the affected part. This has been shown by Manson and others to be due, in tropical countries, to the *Filaria sanguinis hominis*, now known also as the *Filaria Bancrofti* (Fig. 5, H, and Plate XXIII., Fig. 10), which takes up its abode in the lymphatic trunks and discharges its ova into the lymph stream; obstruction of the lymphatic circulation is brought about by the embryos, either mechanically or by setting up inflammation. Lymphatic obstruction may also be the result of violent or repeated inflammation, as in erysipelas, phlegmasia dolens, long-continued eczema, etc.; in fact, anything that interferes with the lymphatic circulation may cause elephantiasis. The disease spares neither age nor sex, but is more common in men; it is sometimes congenital. A malarious climate and poor living are predisposing factors. Where it is endemic,





Fig. 8. —Elephantiasis of Mamma; Left Leg and Foot also affected.

*(From a photograph by Dr. Davies, Samoa.)*



its geographical distribution appears to coincide with that of certain species of mosquito, which serve as the intermediate host of the filaria (Manson). The principal change is in the subcutaneous tissue, which is greatly hypertrophied; the corium and epidermis are also considerably thickened, and papillary growths are not uncommon. Both blood and lymph vessels, muscles, fasciæ, nerves, and bones are also greatly enlarged.

The disease can sometimes be checked by removal from a district where it is endemic. The symptoms can generally be mitigated by improvement of the health, and by soothing applications to the affected part. In confirmed cases of elephantiasis of the leg or scrotum there is no cure but amputation, though sometimes in the former case benefit is derived from excision of redundant masses of skin. Electricity has often given good results. A galvanic current should be applied from five to ten minutes, with the positive pole on or near the sound part and the negative at different spots in the affected region:

## CHAPTER XIX

### GENERAL INOCULABLE DISEASES

SCROFULODERMIA — TUBERCULOUS ULCERS — VERRUCA  
NECROGENICA—ERYTHEMA INDURATUM SCRO-  
FULOSORUM—TUBERCULIDES—LUPUS VULGARIS

TUBERCULOSIS, syphilis, leprosy, yaws, and glanders have this feature in common—that each of them is caused by a specific micro-organism, and is therefore inoculable from one patient to another, although the period necessary for such inoculation to take effect, and other conditions, differ widely. That tuberculosis and leprosy are engendered and transmitted by bacilli has been fully proved by pathological research; and the *Spirochaeta pallida* of Schaudinn is now regarded as the cause of syphilis. Glanders and yaws are also diseases in which the inoculation of a specific virus is followed by general infection. The former is due to *Bacillus mallei*, and in the latter a spirochæte has been demonstrated by Castellani.

### SCROFULA AND TUBERCLE

Before studying the effects of tuberculous infection on the skin, it will be well, for the sake of clearness, to define terms and to indicate the relation in which scrofula stands to tubercle. The progress of pathology has now definitively assigned to tubercle so much that used to be thought to belong to scrofula that there is some danger of the latter being swept away altogether. The reason of the confusion on this subject that still

exists to a certain extent is that the term "scrofula" has been used not only as expressing a particular constitutional state, but as connoting a variety of diseased conditions. Scrofula is not a disease, but a special predisposition thereto; it is a state of soil in which bacilli—especially tubercle bacilli—readily flourish. In view of the strong affinity of the tubercle bacillus for the strumous diathesis, scrofula might almost be defined as potential tuberculosis. It is not, however, for tubercle alone that scrofula prepares the way, but for many other diseases. The condition, in fact, is one of abnormal vulnerability to slight injuries. Lesions in a scrofulous subject are apt to take on a character of chronic inflammation of a peculiar type, in which a tendency to suppuration and the formation of unhealthy sores are the most marked features. Mucous membranes become the seat of catarrh on very slight irritation, and lymphatic glands readily become enlarged. The want of power of resistance in scrofulous subjects is seen in the fact that they suffer more severely than other persons from syphilis and gonorrhœa; and in them scarlet fever, measles, etc., are more likely than usual to run a fatal course. Such persons are also generally considered to be more liable to acute periostitis and necrosis of bone than healthy people. Their tissues are especially vulnerable not only to traumatic influences, but to the action of pathogenic micro-organisms of all kinds, especially, as already said, to the bacillus of tubercle. To sum up, scrofula is merely a special delicacy of tissue, making it abnormally sensitive to injurious influences of all kinds. Tubercle, on the other hand, is a new growth, presenting peculiar anatomical characteristics, and giving rise to definite lesions, which, though varying in appearance according to the situation in which they occur, and other circumstances, are the result of a process that is essentially the same

in them all. To put the relation of scrofula to tubercle into the briefest form, it may be said that scrofula is the soil, the bacillus the seed, and tuberculosis the harvest.

### TUBERCULOSIS

The anatomical element of tubercle is a nodule consisting of a rounded mass of epithelioid cells, containing in its centre one or more large multi-nucleated cells with branching processes—the so-called giant cells. These used to be thought to be characteristic of tubercle, but they are now known to occur in other conditions. Tuberculosis was first shown by Villemin to be an infective process, and in 1882 the specific micro-organism causing the lesions was demonstrated by Koch. The tubercle bacillus (Plate xxiii., Figs. 3 and 6) is a rod-like organism, about one-third of the diameter of a red blood-corpuscle in length, and slightly curved longitudinally. It has no independent power of movement.

The bacillus appears to have a special affinity for the giant cell, which is, so to speak, its ordinary dwelling-place. In slowly growing tubercle very few bacilli are present, sometimes only one in each giant cell; hence it is often extremely difficult to discover them. Koch demonstrated the bacillary nature of tuberculosis by finding the micro-organisms with the microscope, and by cultivating them to many generations outside the body; inoculations of these cultures in animals gave rise to genuine tuberculous disease, and from the affected tissues the micro-organism was recovered. Tuberculosis, therefore, is a form of chronic infective inflammation caused by the irritant action of the specific micro-organism and its chemical products. The disease spreads by infection of the neighbouring parts, and the virus may be carried to distant regions by wandering cells which enter the lymph stream or by transport of the

bacilli by the lymph- or blood-current. Fatty degeneration occurs in consequence of the gradual cutting off of the blood supply from the areas of infection. After this it may dry up and, becoming capsuled in a fibrous envelope, may remain unchanged for an indefinite time ; or it may soften, break down, and suppurate, and in this way be eliminated ; or it may calcify, and at a later period become encapsuled. The particular change which the yellow mass of tubercle undergoes depends on its situation. Calcification is almost unknown in the skin.

The infective power of the tubercle bacillus is not great ; diminished resistance in the tissues to which it may gain access is a necessary condition of its taking root and reproducing itself. The situation of the disease is often determined by some previous injury. Insufficient and unsuitable nourishment, exposure, and other unfavourable conditions of life, especially deprivation of light and fresh air, and insanitary surroundings of any kind, have a marked influence in preparing the soil for the multiplication of the bacillus.

**Tuberculosis of the skin.**—Tuberculosis of the skin may be a localised infection or a local manifestation of a generalised tuberculosis. The lesions of the skin now known to be of tuberculous origin include (1) those conditions formerly called scrofulous, and still, for convenience, grouped under the common though unscientific term of scrofuloderma ; (2) the tuberculous ulcers, strictly so called, occurring in regions exposed to direct infection in persons suffering from pulmonary or intestinal tuberculosis ; (3) verruca necrogenica ; and (4) lupus vulgaris.<sup>1</sup>

**Scrofuloderma.**—Under this heading the follow-

<sup>1</sup> On the relations of tuberculosis to diseases of the skin other than lupus vulgaris, see Nevins Hyde, Hallopeau, and others, *Trans. Third Intern. Congress of Dermatology*.

ing conditions are included : 1. Lichen scrofulosorum ;  
2. Strumous ulcers.

1. **Lichen scrofulosorum.**—This disease, which is improperly called “lichen,” is characterised by a papular eruption, the elements of which are seldom larger than a pin’s head, and are flattened and very slightly resistant. They are red in colour, the tint varying from light pink to violet. They are at first arranged in groups, forming patches of varying size. At the summit of each papule is a little scale, or more rarely a small pustule. In addition to the grouped papules, there are others arranged in arcs of circles, which are chiefly seen about the orifices of the sebaceous glands. The eruption is attended with very slight itching. It may last for months without undergoing any visible change, and finally disappears completely by a process of very gradual exfoliation of the epidermis. The seat of the eruption is generally the trunk (back and lower part of abdomen). At first it consists of isolated groups of papules, but in course of time other groups form near them, and the affection becomes generalised. In this state the whole skin is of a dirty reddish-brown colour, and is covered with thin scales which are easily detached. The course of the disease is extremely slow.

In ninety cases out of a hundred, according to Kaposi, the patients are the subjects of enlarged submaxillary, cervical, and axillary glands. In a few of the cases other evidences of tuberculous disease are present in the form of necrosis of bone or scrofulous ulceration of the skin. A certain proportion of the patients either suffer from phthisis or have a phthisical family history. The disease, according to Kaposi, is never seen in perfectly healthy persons. It is not common after the age of twenty, and sex appears to have little influence in engendering a tendency thereto. Tubercle bacilli have been discovered in the lesions by Jacobi



and Wolff, but many other practised observers—among them Neisser, Hallopeau, Davies, and Klingmüller—have failed to find them. Klingmüller,<sup>1</sup> while believing lichen scrofulosorum to be tubercular, holds it to be due to the action not of the bacilli themselves but of their toxins. Lesseliers<sup>2</sup> accepts the theory of Jadasohn that in cases of apparent reaction to tuberculin there is pre-existent tuberculosis, which becomes active in response to the injection. Experimental inoculations on animals have almost invariably given negative results. The process beginning in the hair follicles and neighbouring sebaceous glands, each papule is situated close to the orifice of a follicle. The papule is formed by infiltration of the papillæ, and the central scale, or small pustule, on the top of the papule is constituted by the heaping up of hypertrophied epidermis or exudation at the orifice of the follicle.

The disease can be identified by the homogeneity of the papules, by their arrangement in groups, by their being situated chiefly on the trunk, by their painlessness, by their not projecting much from the surface of the skin, and by the absence of itching. These features, taken in combination with the youth of the patient, are sufficient in most cases to identify the disease. It sometimes closely resembles papular eczema; but in that complaint itching is usually very troublesome, and the papules are bright red and not limited to the trunk. From lichenoid syphilides lichen scrofulosorum is differentiated chiefly by the absence of any other sign or history of syphilitic infection. Moreover, in the former the papules are not generally arranged in groups, but mostly in circles, and they usually affect the bends of joints. They are also very hard, and have a shiny aspect. Lichen spinulosus is distinguished by the less

<sup>1</sup> *Arch. f. Derm. u. Syph.*, March, 1904, p. 167.

<sup>2</sup> *Ann. de Derm. et de Syph.*, Nov., 1906, p. 897.



inflammatory nature of the lesions, the situation on the limbs rather than on the trunk, and the absence of associated tuberculosis.<sup>1</sup> Lichen scrofulosorum can usually be cured, and even if left to itself is not likely to cause any particular inconvenience. It must be treated locally by soothing and mildly antiseptic applications, such as calamine lotion or boric acid ointment, and constitutionally by measures appropriate to the state of health.

Forms of pustular and pemphigoid character, associated or not associated with lichen scrofulosorum, are occasionally met with.

2. **Strumous ulcers** arise on the skin in different ways: (1) by extension of the inflammatory process from caseating lymphatic glands to the skin covering them; (2) by the formation of a nodule or circumscribed induration under the skin, which becomes involved in the process; (3) by extension from bone which is the seat of tuberculous osteomyelitis. When a gland is the starting-point of the process the skin over it becomes red and infiltrated, and often adheres to the gland; after a time the skin breaks, sinuses form, and the tuberculous process becomes complicated by more or less profuse suppuration, owing to the entrance of pyococci. When nodules develop under the skin independently of glands, they give rise to what Eriksen calls "subcutaneous scrofulous abscess." The skin over the nodules is raised, and at first dusky purple in hue; then, as the underlying growth softens, it breaks, giving issue to a thin curdy discharge, and an ulcer is formed bordered by dark-bluish thin undermined skin, the vitality of which is too feeble to allow of any attempt at repair. The edge is sometimes sharp cut, but

<sup>1</sup> Adamson: "Skin Affections in Childhood," 1907, p. 208; also "Lichen Pilaris seu Spinulosus," *Brit. Journ. Derm.*, March, 1905, p. 77.

more often ragged; the floor is grey and irregular, the granulations are flabby and covered with unhealthy pus. These ulcers generally spread slowly but steadily, and in this way large indolent sores may be formed which are sometimes covered with heaped-up crusts simulating rupia. Such ulcers are common on the face and on the hands (where the process may extend to the bones, constituting one form of strumous dactylitis), and they are not unfrequently seen on the feet and on the buttocks. In a patient under my care the elbows and knees were the seat of the affection. Healing seldom takes place spontaneously. These ulcers are, as a rule, seen in young people who have the notes of the scrofulous constitution plainly written on them in their physiognomy, or in the marks of similar lesions on the neck, the nose, the eye, or elsewhere. Flat ulcers, with clean-cut edges (as if the skin had been punched out) which tend to spread slowly, are sometimes seen in old people who bear scars of strumous sores with which they were afflicted in early life. These senile strumous ulcers occasionally assume the character of rodent ulcer or epithelial cancer.

The only conditions that are ever likely to be mistaken for scrofuloderma are syphilis and lupus. The syphilitic ulcer is met with in adults, and has not the characteristic undermined border; moreover, the process is generally much more active, and concomitant symptoms or marks usually indicate the nature of the disease. The absence of infiltration and of "apple-jelly" nodules will serve to distinguish scrofulous lesions from lupus. The two conditions may, however, co-exist, and Leloir<sup>1</sup> believes that in the same way syphilis may be mixed with scrofuloderma in the same subject.

The **treatment** of scrofuloderma must be con-

<sup>1</sup> *Journ. des Mal. Cut.*, Sept., 1891.

ducted on ordinary surgical principles. Abscesses must be opened and their walls scraped; caseous glands must be removed, and ulcers cleansed and stimulated. The unhealthy undermined skin at the edge of the ulcers must be trimmed away, the floor thoroughly scraped, and antiseptic dressings applied. X-Rays are sometimes useful. The patient's constitution must at the same time be strengthened by plenty of good food, cod-liver oil, iron and other tonics, according to the indications, and especially by sea air and a wholesome environment.

**Tuberculous ulcers.**—Primary tuberculosis may occur on the face, on the breast, and elsewhere in the form of ulcers with an infiltrated, ragged, and undermined edge, and a slightly indurated floor covered with yellowish tubercles, moistened with a thin and scanty secretion. The surface is often more or less thickly crusted over. They are sometimes indolent, but usually they cause considerable pain.

Occasionally the ulcers are the result of the breaking down of small tuberculous nodes. The lesion may be the precursor of tuberculous disease of the lung or intestine. Köbner<sup>1</sup> has reported a case in which a tuberculous ulcer of the chin preceded the development of laryngeal phthisis. More commonly, however, such ulcers are secondary to pulmonary or intestinal tuberculosis. They are generally situated at the junction of skin and mucous membrane—about the corner of the mouth and margin of the nose in cases of lung disease, and at the anus, vulva, and glans when the intestine is the seat of the primary lesion. In the former case the ulceration may spread to the mucous membrane of the tongue, cheeks, soft palate and nose, and in the latter to the urethra and bladder. When the mucous membrane is the seat of these ulcers yellow

<sup>1</sup> *Berlin. med. Gesellschaft*, March 15, 1893.

miliary tubercles can generally be seen in their vicinity. There may be one or several ulcers. They show no tendency to heal, but slowly spread by infection of the contiguous parts, sometimes attaining a considerable size. Occasionally they run together, forming serpiginous sores. In a patient of mine, who died of phthisis at the age of forty-two, numerous small ulcers coalesced and formed a large ulcerated surface, which nearly surrounded the left ear.

Tuberculous ulcers of the skin are the result of direct inoculation with tuberculous matter. This often occurs in patients suffering from tuberculosis; hence their relative frequency in situations where bacilli in the fæces or sputa can readily find their way into any abrasion of the surface that may exist. I have seen such ulcers begin in a patch of eczema. Infection may also be conveyed from one patient to another. This is a not uncommon consequence of ritual circumcision, when the wound is sucked by an operator who is the subject of tuberculosis.<sup>1</sup> The virus is also sometimes conveyed by tattooing.

The diagnosis is usually easy, owing to the presence of other signs of tuberculosis. When the ulcer is primary its surface should be scraped, and the shreds of tissue thus obtained examined for bacilli. In Köbner's case, above referred to, the lesion was judged to be syphilitic by several practitioners, and it was only the failure of treatment based on this view and the subsequent invasion of the larynx by tubercle that revealed the nature of the disease.

**Verruca necrogenica** or **post-mortem wart**.—This is a condition seen on the hands of medical men, mortuary porters, butchers, cooks, and other persons

<sup>1</sup> See Bernhardt, quoted by Graham Little (*Brit. Journ. Derm.*, March, 1901). This method of stopping bleeding is no longer practised in Britain.

who are in the habit of handling dead tissue containing living tubercle bacilli. Fabry has noted the relative frequency of the disease in colliers; this he attributes to the wounds of the hands which are so common in those who handle coal. This form of skin tuberculosis is characterised by the formation of obstinate red indurated wart-like growths, chiefly on the knuckles and in the interdigital folds, but occasionally on other parts of the hands, and even on the arms. It usually begins as a flat papule, which by-and-by becomes pustular. The pustule dries up and forms a scab, which in time falls off, leaving a surface made irregular by prominent papillæ. These gradually become larger and harder, till they form a warty mass, which may spread slowly at the edge for an indefinite time. Hutchinson cites a case in which the growth continued to enlarge slowly for forty years. Sometimes spontaneous involution takes place, and the warts disappear, leaving a scar.

The condition appears to be identical with that described by Riehl and Paltauf<sup>1</sup> under the name of *tuberculosis verrucosa cutis*. This is a local tuberculosis of the skin, the affected tissues showing the changes characteristic of tubercle, together with the specific bacillus, which is present in larger numbers than is the case in lupus. The condition known as *lupus verrucosus*, and seen chiefly on the hands and feet, is also a form of local tuberculosis of the skin, having the same characters as *post-mortem* wart. Primary cutaneous inoculation of tuberculosis on the extremities in patients who have to attend to those suffering from tuberculosis frequently takes the form of *verruca necrogenica*.

The diseased tissue in all these conditions should be removed with *salicylic acid*, applied by means of *Unna's plaster mull* or *Brooke's ointment*. If the lesions are

<sup>1</sup> *Viertelj. f. Derm. u. Syph.*, 1886, Hft. i., p. 16.

spreading actively they should be thoroughly destroyed with caustics or electric cautery or treated by X-Rays.

**Erythema induratum scrofulosorum** was first described by Bazin (hence it is sometimes called *Bazin's disease*), and has been exhaustively studied by Colcott Fox.<sup>1</sup> The special lesions are chronic, inflammatory, deep-seated nodules, which develop chiefly on the legs, and also in other parts. These nodules often closely resemble syphilitic nodular gummata. The lesions, which are painless, are at first subcutaneous, and can only be felt, not seen. They affect the back rather than the front part of the leg; the skin over them occasionally presents a violet-tinted discoloration. They are generally discrete, but sometimes become fused together so as to form a solid mass of infiltration. They are apt to break down into irregular ulcers. The large majority of patients are young girls, and the disease is particularly common in washerwomen and other women whose occupation involves much standing. When ulceration occurs the affection is generally taken to be syphilitic, but in typical cases no evidence of syphilis is present, and anti-syphilitic treatment does harm rather than good. In many cases the patients present clear signs of scrofula, but sometimes they seem, save for the local affection, to be perfectly healthy. Numerous lesions resembling lichen scrofulosorum and erythema induratum scrofulosorum have recently been described and discussed under such names as "folliclis," "acnitis" (see page 444), etc., and their relation to tuberculosis suspected. That one form of the disease is tuberculous was proved by Colcott Fox, who excised a deep-seated nodule and submitted it to examination. Typical giant cells were found, though not in great abundance. The result of an experimental inoculation in a guinea-pig made by Eyre was that the animal died of tuber-

<sup>1</sup> *Brit. Journ. Derm.*, Aug., 1893.



culosis. Hartung and Alexander also,<sup>1</sup> in discussing a series of five cases treated in the General Hospital at Breslau, treat the affection as tuberculous, of hæmatogenous origin, and interpret erythema induratum and folliclis as variants of the same pathological process. In a case of MacLeod's a positive ophthalmotuberculin reaction was obtained.<sup>2</sup> But Whitfield has reported two cases in which there was no sign whatever of tuberculosis, and in the light of these and other cases he concludes that there are "two well-defined types of the disease, one tuberculous and the other non-tuberculous, the latter occurring usually, though not invariably, in older patients than the former, running a more rapid course, showing less tendency to ulcerate and causing much more pain." The earlier of the two cases was shown to the Dermatological Society of London, and the diagnosis of erythema induratum accepted.<sup>3</sup> The treatment is rest in the horizontal position, compression by bandaging, and cod-liver oil internally.

**Tuberculides.**—Under this name a somewhat motley group, presenting a great variety in appearance, but having certain characters in common, has been provisionally brought together. In the words of Colcott Fox, who presented a masterly report of these eruptions to the Fourth International Congress of Dermatology, "the essential lesion is a small, extremely indolent granuloma, tending to undergo central softening and death, and thus leaving scars." According to difference in the size, character, grouping, and behaviour of the

<sup>1</sup> *Arch. f. Derm. u. Syph.*, Sept., 1904, p. 384.

<sup>2</sup> *Brit. Journ. Derm.*, Jan., 1908, p. 16.

<sup>3</sup> *Brit. Journ. Derm.*, July, 1905, p. 241. For an account of the histology of erythema induratum scrofulosorum and of inoculation experiments, see Ch. Audry, *Ann. de Derm. et de Syph.*, March, 1898, p. 209.



lesions, a bewildering complexity of affections, with a corresponding complexity of nomenclature, has been described by various observers. The following are a few of the names by which the lesions have been known : *Lupus-psoriasis scrofulosa*, *folliculitis exulcerans*, *folliculitis scrofulosorum*, *hydradenitis destruens suppurativa*, *spiradenitis disseminata suppurativa*, *acnitis*, *acne telangeiectodes*, *impetigo varioliformis*, *acne varioliformis*, and *folliclitis*.

The evidence of the tuberculous nature of these varied eruptions is not by any means complete. They are often, though by no means invariably, associated with tuberculous disease in the lungs and lymph glands or with strumous ulcers (Plates xxv. and xxvi.). The microscopical evidence so far obtained is inconclusive, while the bacteriological evidence is absolutely negative. Experimental inoculations have for the most part been unsuccessful. It has been suggested by Hallopeau and others that these tuberculides may be the result, not of the inoculation of tubercle, but of the circulation in the blood of toxins produced in tuberculous foci within the body. In view of the eruptions produced by other kinds of toxins and by certain drugs, the possibility of such an origin cannot be denied. But at present it is a theory resting on no solid proof. Fox points out that if these tuberculides are due to the implantation of tubercle bacilli, starting from some distant focus and coming by way of the blood stream, the organisms must be of little virulence and are probably easily killed. This would, he suggests, explain why the pathological changes are often indecisive, and why inoculations fail. Pautrier, the author of a large work on the tuberculides,<sup>1</sup> thinks that possibly the tubercle bacillus arrives in the skin either moribund or actually dead. In Fox's

<sup>1</sup> "Les Tuberculoses Cutanées Atypiques (Tuberculides)." Thèse de Paris, 1903.

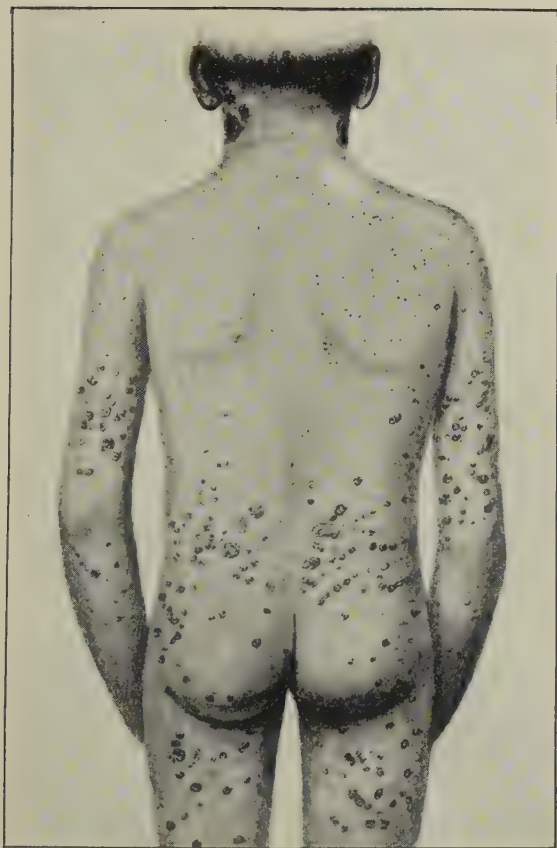


PLATE XXV.—GENERAL TUBERCULIDE (SAME PATIENT  
AS PLATE XXVI.).





PLATE XXVI.—GENERAL TUBERCULIDE, SHOWING STRUMOUS  
ULCERS (SAME PATIENT AS PLATE XXV.)



experience tuberculides are frequent sequelæ of measles, which, as is well known, is often the determining factor in the development of phthisis.

In a short text-book a full description of the affections designated by the comprehensive term "tuberculides" would be out of place. The reader who desires fuller information is recommended to consult Fox's paper, which is not only a summary of the whole subject, but a storehouse of references bearing thereon.

**Acneiform tuberculide.**—An affection described under this name presents sufficiently distinctive features to deserve special mention.<sup>1</sup> J. M. H. Macleod of London and Oliver Ormsby of Chicago have made an exhaustive study of two cases. The following are the essential details: Case 1. The patient was a baby with tuberculous history and evidences of general tuberculosis—dactylitis, acneiform tuberculides on the arms, hips, etc. Histological examination revealed typical tuberculous architecture and tubercle bacilli in the giant cells; there was also endophlebitis in the veins of the hypoderm. Case 2. A woman, aged twenty-five, with acneiform tuberculides on the legs. Typical tuberculous architecture was seen in the sections, with periphlebitis and endophlebitis. Macleod and Ormsby conclude that acneiform tuberculides begin in an affection of the hypoderm, the cause of which is the tubercle bacillus. The process results in a deep-seated necrosis, definitely tuberculous in character, which is the consequence of the invasion of the tubercle bacillus and its toxins. Török<sup>2</sup> describes, under the name of *dermatitis nodularis necrotica*, a case which is clinically identical with acneiform tuberculides.

**Lupus vulgaris** is a form of tuberculosis of the skin presenting such marked clinical characteristics

<sup>1</sup> *Brit. Journ. Derm.*, 1902.

<sup>2</sup> *Arch. f. Derm. u. Syph.*, Dec., 1901, p. 339.

as to make it a distinct morbid entity. Though undoubtedly bacillary in its origin, its virulence is comparatively slight. The distinctive lesion is a new growth in either the superficial or the deep part of the corium. This neoplastic nodule (called by Leloir *lupoma*) is soft, brownish-red in colour, and translucent, resembling apple jelly (Hutchinson). The lupus nodule is slow in evolution, and destroys the tissues which it invades, either by ulceration (*lupus exedens*) or by atrophy (*lupus non exedens*). The characteristic nodules are at first buried in the skin, on the surface of which after a time they show themselves as papules of the size of a pin's head. These are at first dull red in colour and become pale, but do not disappear on pressure. They are discrete and arranged in groups, sometimes in irregular circles. The papules gradually become larger and develop into nodules, the intervening skin meanwhile becoming thickened by cellular infiltration, reddened by inflammatory stasis in the vessels, and somewhat raised so as to form a distinct patch; at this stage the apple-jelly nodules project slightly above the skin (Plate xxvii.). Their translucency varies according to the thickness of the epidermis covering them. New nodules spring up around the edge of the patch, which in this way spreads very slowly and may gradually invade a large area of skin. The surface of the lesions is covered with fine branny scales, but not so thickly as to hide the red ground of the patch. The lupus tissue tears very easily, in marked contrast to the tough corium. The disease usually starts from a single focus, but others may arise, and, developing separately, or coalescing with neighbouring ones, may involve almost the whole body (*lupus disseminatus*). The process is, as a rule, extremely slow, and in some cases it may come almost to a standstill for an indefinite time. The patch may slowly undergo involution in the centre, a smooth, firm scar





PLATE XXVII.—EARLY LUPUS VULGARIS.





PLATE XXVIII.—ULCERATING LUPUS VULGARIS.



being left resembling that of a burn. This is often bounded by a ridge of bluish-white or reddish tubercles, which continue slowly to invade the surrounding skin.

In the majority of cases, however, ulceration takes place at some time, the lupus tissue breaking down and forming a granular sore covered with greenish-black crusts; dotted around the edge, which is ragged, are apple-jelly nodules in various stages of development (Plate XXVIII.). The ulceration may extend through the whole thickness of the skin, and in parts, like the nose, where the integument is thin, it sometimes causes necrosis of cartilage; it never, however, erodes bone, a point which conspicuously differentiates it from syphilis and cancer. If the inflammatory process reaches any degree of intensity, enlargement of neighbouring lymphatic glands not unfrequently follows; this enlargement is considered by Leloir to be due to diffusion of the tuberculous virus by the lymphatics. As a general rule, it may be stated that the ulceration of lupus is extensive rather than deep. Occasionally, especially after the surface of a lupus patch has been scraped, the process seems to be quickened into considerable activity, the skin becoming hot and hyperæmic, rapid development of fresh nodules taking place, and general febrile symptoms coming on. The phenomena, in fact, recall a mild reaction after the injection of tuberculin, and are probably to be explained by the absorption of bacillary products.

All phases of the lupous process may be present at one and the same time in a given case. Often while one part of a patch is in active ulceration another is cicatrising, and nodules in all stages of development are to be seen on its surface. In adults sometimes the lesions are infiltrated patches raised more at the edge than in the centre, and with no translucent nodules. The different degrees of infiltration of the skin and of intensity of the inflammatory process, together with

the anatomical peculiarities of the part affected, give rise to the greatest diversity in the appearance of the lesion. These variations are expressed by such terms as *lupus hypertrophicus*, *papillomatosus*, *serpiginosus*, etc., which must be understood as indicating differences of appearance, not of process.

Lupus is seldom symmetrical in distribution. The favourite point of attack is the face, especially the nose and the neighbouring part of the cheek (Plate xxix.); it also occurs on the limbs, especially the hands and feet, on the trunk, and on the buttocks. No part of the skin is safe from invasion, but, as Hutchinson has pointed out, the warmer a part is the less likely is it to be attacked by lupus. The disease is rare on the genitals and on the scalp, though it may spread to these parts from foci in their neighbourhood. The mucous membranes of the cheeks, soft palate, pharynx, and larynx are sometimes the seat of the disease, which generally extends to these parts from the skin of the face; occasionally, however, the larynx may be attacked primarily; the tympanic membrane may be invaded through the external meatus from the ear or through the Eustachian tube from the throat. A patient of mine, a lady past middle age, who for years had been the subject of lupus of the face and other parts of the skin, developed the disease in the vagina and on the os uteri. The appearances in this case bore no resemblance to those described by Matthews Duncan and Thin in a case which they supposed to be an example of vaginal lupus, but which was in all probability of syphilitic nature.

The course of lupus is almost always extremely slow, often lasting twenty or thirty years, or longer. The process is more active in childhood than in later life, and its activity, as a rule, becomes less with advancing age. The normal sluggishness of the process is



PLATE XXIX.—EXTENSIVE LUPUS VULGARIS.





diversified by occasional episodes of unwonted activity, during which the disease may make considerable progress. This sometimes occurs under the influence of the physiological changes which take place at puberty, or as the result of an attack of some acute illness, such as measles or scarlet fever, or of external irritation, as by cold. These periods of activity are followed by long intervals of comparative quiescence, the disease seeming almost to die out. Spontaneous cure sometimes takes place, though this is too rare an event to be taken into account in practice. Even when the process does come to a standstill, this usually does not occur until it has wrought irreparable destruction on the parts attacked, leaving hideous scars, obliterated passages, and deformed limbs, which would render life all but intolerable for most people. As a rule, lupus is unattended with pain.

The secondary effects of lupus depend on the severity of the process, and also on the situation of the disease. On the face it leaves its mark in destruction of the nose, with scarring of the cheeks, etc., and enlargement of glands, particularly of the parotid. Caseation and breaking down may take place in these, leading to the formation of scrofulous ulcers, and often to profuse suppuration, which undermines the patient's health. Great development of fibrous tissue sometimes takes place in the cicatrices and in the limbs; this leads to contraction and crippling of joints. The skin not uncommonly becomes adherent to the underlying fasciæ and tendons, the whole being glued together into a dense, tough mass, adherent to the bone, which is itself thickened and sclerosed. The ulcerated parts may become the seat of warty vegetations (*lupus papillomatosus*). There is nothing peculiar to lupus in these secondary changes, which are the results of chronic inflammation in tissues of abnormal vulnerability, complicated by the action of pyogenic cocci which come in to complete

the destructive work of the tubercle bacillus. I have seen pseudo-elephantiasis of the lower limb due to blocking of the lymphatics as a rare result of lupus vulgaris.<sup>1</sup> A still more formidable complication is the development of epithelioma, which takes place in a certain proportion of cases<sup>2</sup> (Plate xxx.). This, if I may judge from my own experience, is not very common, but Ashibara has collected 122 instances. Lupus is sometimes associated with chronic œdema (Plate xxxi.).

Lupus does not appear to have any effect on the general health, except in rare cases. According to Leloir,<sup>3</sup> however, lupus of the hand may become "a starting-point of tuberculous lymphangitis with production of scrofulo-tuberculous gummata developed along the course of the lymphatics attacked, and finally, under the influence of the absorption of the tuberculous virus by the lymphatics of the upper limb, determine a pulmonary tuberculosis of the corresponding side." Leloir looks upon the enlargement of the glands, which has been described as occasionally taking place in the neighbourhood of lupus patches, as evidence of secondary tuberculous infection, and this fact he claims to have proved histologically and experimentally. Of seventeen patients under his own observation in 1885-86, ten presented unquestionable evidence of pulmonary tuberculosis.<sup>4</sup> Doutrelepont<sup>5</sup> has reported a case in which a healthy woman, the subject of lupus of the face and limbs, rapidly succumbed to tuberculous meningitis, as

<sup>1</sup> See a report of the case (which was under my care in St. Mary's Hospital), by Leslie Roberts, in the *Brit. Journ. Derm.* 1888-89, p. 339.

<sup>2</sup> *Arch. f. Derm. u. Syph.*, Bd. lvii. Dubois-Havenith, "Du Lupus Vulgaire," Brussels, 1890, p. 138, says that epithelioma developed in five of his 118 cases.

<sup>3</sup> *Ann. de Derm. et de Syph.*, 1886.

<sup>4</sup> *Ibid.*, 1886, p. 332.

<sup>5</sup> *Monats. f. prakt. Derm.*, June, 1883.

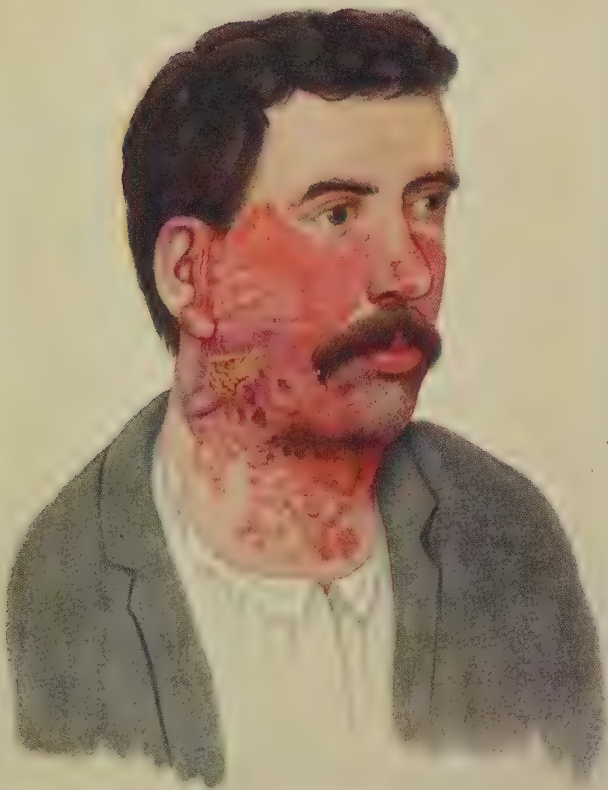


PLATE XXX.—LUPUS VULGARIS WITH EPITHELIOMA.



proved by *post-mortem* examination; the lupus lesions were the only discoverable source of infection. Thibierge has recorded the case of a boy aged fifteen, who suffered from peritoneal and pulmonary tuberculosis, the commencement of which dated from the cure of a patch of lupus on the cheek. Besnier, from long clinical observation, has come to the conclusion that secondary tuberculous infection is a not unfrequent result of lupus; sometimes this takes place rapidly (within two or three years), sometimes very slowly (ten, twenty, thirty years, or longer); usually, he says, the subjects of lupus who become phthisical do so in a latent and very slow manner. He gives the proportion of such secondary phthisis in his own practice as 21 per cent. Dubois-Havenith<sup>1</sup> states that among 118 patients under his own care suffering from lupus, eight died from pulmonary consumption. Lailier, from observation extending over many years at the St. Louis Hospital, states that pulmonary tuberculosis is a frequent cause of death among sufferers from lupus. Renouard<sup>2</sup> found that of 137 cases of lupus, fifteen developed pulmonary phthisis. Haslund of Copenhagen puts the proportion of secondary pulmonary infection in the lupus patients in his own clinic at the startling figure of 60 per cent. On the other hand, Nevins Hyde of Chicago has never seen a case of such infection; and Brocq's experience has been equally negative.

This divergence of opinion is sufficient to show how difficult it is to obtain clinical evidence on this point which is conclusive one way or other. My own experience is that the development of secondary tuberculosis in the lungs from a focus of lupus on the skin is decidedly unfrequent.

Severe and extensive lupus is sometimes compli-

<sup>1</sup> *Loc. cit.*, p. 25.

<sup>2</sup> Quoted by Dubois-Havenith, *loc. cit.*

cated by wasting and anæmia. Many patients, however, have all the appearance of robust health; but as a class sufferers from lupus are not long-lived.

**Etiology.**—The essential etiological factor is local tuberculous infection. The tubercle bacillus of Koch, though most difficult to find, is probably always present in some stage of the lesion, and tuberculous infection can be produced by inoculation of cultures made from these lesions. Of the exact mode in which the infection is ordinarily conveyed little is yet definitely known. It is probable that the bacillus gains access by an accidental abrasion of the epidermis, or it may conceivably be carried to the skin by the blood or lymph after having found its way inside the body through one of the natural passages. Wolters<sup>1</sup> reports a case of the nodular form of lupus in which, as the result of detailed microscopical examination, he believes that the bacillus was carried to the skin from the blood-vessels, having reached the veins from a tuberculous gland. There are, however, a number of secondary causes which play a more or less important part in the production of the disease. Youth is a predisposing influence. The disease usually begins within the first ten years of life, occasionally at puberty, seldom later. In exceptional instances it develops in middle life, or even in old age. Females show considerably greater liability than males. The disease, while sparing no class, numbers more victims among the poor than among the well-to-do. Cold is a predisposing factor of some importance, as evidenced by the greater frequency of the disease on exposed than covered parts. Even if cold cannot be shown to have any direct influence in the production of the disease, undoubtedly it has a pernicious effect on the process when once established. Measles appears sometimes to be the determining factor

<sup>1</sup> *Arch. f. Derm. u. Syph.*, March, 1904, p. 83.





PLATE XXXI.—LUPUS VULGARIS WITH CHRONIC ŒDEMA.



in the development of lupus. H. G. Adamson<sup>1</sup> has analysed a series of twenty-eight cases, in nearly all of which multiple cutaneous lupus followed an attack of that disease. The correlation between the two affections was first noticed by Du Castel. I have myself seen cases of lupus made much worse by the supervention of measles. Discussing cases of multiple cutaneous lupus consecutive to acute exanthemata, F. v. Veress<sup>2</sup> concludes that the lesions are due to external inoculation and not to infection conveyed by the blood.

Pre-existing lesions or scars form the starting-points of the disease in a certain proportion of cases. Slight injuries, burns, sores, blisters, infantile eczema, etc., are, according to Besnier, "very commonly" the immediate causes of lupus. It is obvious that under such conditions the tubercle bacillus may more readily gain access to the tissues than when the integument is intact. Neisser holds that most cases of lupus of the face have their origin in a diseased nasal mucous membrane. The inoculation may be made by a contaminated finger used to "pick" the nose; if the mucous membrane is unhealthy, the conditions are favourable to the growth of the bacillus, and a tuberculous focus is established. Nasal catarrhs and eczematous eruptions about the nostrils in uncleanly subjects prepare the soil for infection. I have seen cases in which lupus apparently began in the tear-ducts and travelled down into the nose. These facts may account for the marked predilection which the disease shows for the nose. The affection has been known to begin in the vesicles of herpes (Crocker, Kaposi). Among other conditions which have been found to be starting points of lupus are eruptions, suppurating glands, boils, and syphilitic lesions.

<sup>1</sup> *Brit. Journ. Derm.*, Oct., 1904.

<sup>2</sup> *Monats. f. prakt. Derm.*, June 1, 1905, p. 585.

Analysing a series of 923 cases of lupus vulgaris treated in the Light Department of the London Hospital, Dr. Emlyn Jones<sup>1</sup> found that 47·3 per cent. arose as a small spot on the face, cheek, or neck (including a few arising round the margin of the eyelids and on the auricle, but not those springing from tuberculous glands, or from scars of gland abscesses or scars left by the removal of old glands); that 28·9 per cent. appeared on the nose or in the nostril; that 11·4 per cent. were secondary to tuberculous glands, arising either in the scar or in gland abscesses; that 1·8 per cent. originated in mucous membranes other than the nasal; and that 1·8 per cent. were secondary to tuberculosis of bone; while 8·5 per cent. arose in miscellaneous ways.

The state of the general health has no direct influence on the causation of lupus, and the disease is probably hereditary only in so far as a tuberculous inheritance may create a predisposition thereto. It has been suggested by Baumgarten, however, that the bacillus itself is directly inherited, and in that case the origin of lupus might be explained by the settlement of the micro-organism in the skin of the foetus. Cases in which lupus has been directly inoculated have been reported by Jadassohn<sup>2</sup> and others. In one case a woman was tattooed on the forearm by a man suffering from pulmonary tuberculosis, from which he afterwards died; the operator used his saliva to dilute the ink, and typical lupus nodules appeared on the tattooed parts. Besnier<sup>3</sup> showed a case of lupus in a lad aged eighteen, in whom the development of the disease had taken place in a vaccination scar, where it had developed within a few months of the operation. Graham Little<sup>4</sup>

<sup>1</sup> *Brit. Journ. Derm.*, vol. xix., p. 305, Sept., 1907.

<sup>2</sup> Dubois-Havenith, *loc. cit.*

<sup>3</sup> *Ann. de Derm. et de Syph.*, 1889, p. 576.

<sup>4</sup> *Brit. Journ. Derm.*, March, 1901.

has recorded several cases in which lupus developed on vaccination scars ; Colcott Fox, however, under whose observation some of them were, does not think they prove anything in regard to the transmission of lupus by vaccination. Dubois-Havenith<sup>1</sup> mentions a case which suggests the possibility of contagion in certain circumstances : two sisters, one of whom had for eight years had a large patch of lupus on the left cheek, shared the same bed. For the last two years the other sister had a lupus patch on the lobe of the right ear—that is to say, the ear which was sometimes in contact with her sister's cheek as they lay in bed.

In a well-marked case of lupus the **diagnosis** is easy. The presence of apple-jelly nodules at once indicates the nature of the process. A typical lupus patch, with its infiltrated raised surface, defined edge studded with apple-jelly nodules, the whole covered with a moderately thick layer of scales, can hardly be mistaken for anything else. The disease, however, may sometimes have to be distinguished from syphilis, scrofuloderma, lupus erythematosus, rodent ulcer, and cancer. The following are the points differentiating it from syphilis : It begins in childhood, whereas syphilis begins in adult life ; in its rate of progress it is to syphilis as the hour hand to the minute hand of a clock (Payne) ; the ulcers are ragged instead of sharp-edged ; the ulcerated process never involves bones ; lastly, if the lesions are syphilitic other traces of the disease are sure to be discoverable, and if any doubt should remain, a course of anti-syphilitic treatment will clear it up.

In scrofuloderma, also, other evidences of the disease are to be seen on the neck or elsewhere, in the form of enlarged glands or scars. As lupus and scrofuloderma not unfrequently coexist, and as the treatment of both conditions is practically the same, the recognition of

<sup>1</sup> *Loc. cit.*, p. 38.

what is lupus and what is scrofula is a matter more of academic than of practical importance.

The points of distinction between lupus erythematosus and lupus vulgaris may be summed up as follows :— While lupus vulgaris appears before puberty, lupus erythematosus generally shows itself after that period ; the soft apple-jelly nodules characteristic of lupus vulgaris are altogether absent in lupus erythematosus ; while lupus vulgaris usually ulcerates at some time in its course, lupus erythematosus never does so ; while lupus vulgaris erodes cartilage, lupus erythematosus never extends to the deeper parts ; finally, lupus vulgaris is not symmetrical in its distribution like lupus erythematosus. There are cases, however, in which the characteristic lesions of lupus vulgaris are masked by œdematous swelling, and in such circumstances it may be difficult to distinguish it from lupus erythematosus ; even then, however, if the scaly covering of the patch be removed, the prickle-like plugs on the lower surfaces of the crusts will serve to identify the condition as lupus erythematosus. The condition in which lupus vulgaris assumes the aspect of lupus erythematosus has already been described. By stretching the skin at the spreading edge of the disease, however, small amber-coloured nodules, having the characters of those distinctive of ordinary lupus, can generally be seen. Although such patches never present any trace of ulceration, a tendency to cicatrization is visible at the border ; this is never observed in true lupus erythematosus.

In its earliest stage lupus may sometimes resemble eczema seborrhœicum, but the appearance of the apple-jelly nodules, the slow course of the process, and the tendency to the formation of scars, will serve to distinguish it from that affection.

Rodent ulcer is essentially a disease of later life.

The lesion is, as a rule, single ; it is much slower in its course than lupus, and when an ulcer is formed it penetrates deeply into the tissues. It differs from a lupus ulcer in having an indurated border and a smooth base.

Epithelioma is also a disease of later life. The hard everted edge, the foul base often roughened with warty formations or sprouting with cauliflower-like excrescences, the implication of neighbouring lymphatic glands, and the secondary deposits in other parts, will serve to identify the disease.

In certain rare cases, where the lesions are numerous and scattered about the body, and where they are exceptionally scaly, lupus may simulate psoriasis ; but on careful examination there will almost always be found one or two patches at least presenting the typical characters of lupus.

It should be noted that Neisser uses tuberculin (O.T.) as a routine method of diagnosis, but with caution if the lungs are affected, and if they are much affected, not at all, lest the tuberculous focus should break down and set up general tuberculosis. He asserts that whenever a typical local reaction occurs the lesion is tuberculous, and when absent, non-tuberculous.<sup>1</sup> The late Sir T. McCall Anderson, another strong advocate of the use of the old tuberculin in diagnosis, testified that with reasonable care it is both safe and efficient.<sup>2</sup>

The **prognosis** is favourable as regards life, as lupus seldom, if ever, directly causes death. The possibility of secondary tuberculous infection, slight as on the whole it may be, must be borne in mind ; nor should the possibility of the development of epithelioma be forgotten. Fordyce of New York says that the prognosis

<sup>1</sup> R. Cranston Low, *Scot. Med. Journ.*, May, 1905 (abstr. in *Brit. Journ. Derm.*, May, 1906).

<sup>2</sup> *Brit. Journ. Derm.*, Sept., 1905, p. 317.



of epithelioma arising on lupus is of greater gravity than that of the ordinary cutaneous form. As far as recovery is concerned, the prospects of the patient depend on the severity and extent of the process, and in an almost equal degree on the treatment which is applied. In the most favourable circumstances lupus is an obstinate affection, with a pronounced tendency to recurrence even after the most thorough removal. If the disease be limited in extent, however, and the patient otherwise healthy, persevering treatment will, in a certain proportion of cases, bring about a cure. As already said, the process is most active in childhood, and the older the patient the more hopeful is the prospect of treatment proving successful.

**Pathologically,** lupus vulgaris is a local tuberculosis of the skin. The essential lesion is a new growth resulting from the irritation caused by the presence of the tubercle bacillus (Plate xxiii., Fig. 6). The process begins in the deeper layers of the cutis; the nodules displace the bundles of fibrous tissue, and as they increase in size they grow upwards through the skin, destroying its component elements by pressure, so breaking through the papillary layer and emerging on the surface, where they are covered only by epithelium, more or less translucent, as already said, according to its thickness.

On microscopic examination the nodules are found to be composed of giant cells (Plate xxiii., Fig. 6, and Plate xxxii.), surrounded by a layer of epithelioid cells, with an outer envelope of ordinary lymphoid or small round cells. The lupus nodule is practically identical in structure with the nodule of tuberculosis, and this fact led Friedländer and Koster to look upon lupus as a local tuberculosis before this was proved bacteriologically by Koch. Tubercle bacilli are present in numbers which probably vary with the acuteness of the case; even in



PLATE XXXII — MICROSCOPIC SECTION OF NODULE OF LUPUS VULGARIS.



the growing edge there is often only one in a giant cell: It is not surprising, therefore, that frequently they cannot be discovered on the most careful examination: When a lupus nodule has reached its highest development retrogression sets in. This may take one of two directions—namely, either fatty degeneration, followed by the formation of a fibrous cicatrix, or softening and ulceration. Lupus, however extensive or disseminated it may be, shows comparatively little tendency to become generalised. But it is frequently associated with tuberculosis of other organs. Of fifty cases in Petersen's clinic at Petersburg analysed by W. Schiele,<sup>1</sup> other organs were tuberculous in thirty-five, and similar results have been reported by other observers.

In the **treatment** of lupus the object to be aimed at is the complete removal or destruction of the diseased tissue. For this purpose internal treatment is useless, although it may sometimes be of service indirectly by remedying any constitutional condition which favours the proliferation of pathogenic micro-organisms. In deciding upon the particular method of local treatment to be pursued, the practitioner must not be guided entirely by the destructive energy of a particular agent or procedure ; other points, such as the size and situation of the lesions, the tolerance of pain in a given patient, the length of time which the treatment will probably require, and the nature of the scar likely to be left, have to be taken into account, according to the circumstances of the case. Again, the idiosyncrasy of the disease itself must be reckoned with : while in some cases the roughest handling does no harm, in others the disease is of so angry a nature that even the mildest local treatment is resented. In dealing with lupus, as with other affections of the skin, the practitioner must feel his way, and, while ruthless in his war against the

<sup>1</sup> *Arch. f. Derm. u. Syph.*, Dec., 1903, p. 337.

disease, must never forget that there is a patient behind it.

If lupus is superficial, an attempt should be made to bring about exfoliation of the diseased tissues. The best application for this purpose is *salicylic acid*, which may be used in the form of *Unna's salicylic acid and creosote plaster mull*, the latter drug being introduced to neutralise the pain caused by the former. The parts should first be softened with an emollient ointment, and then well washed with soft soap, so as to remove the scales. Care must be taken not to continue the use of salicylic acid too long, and to confine its use as nearly as possible to the affected surface, so as not to injure the surrounding skin. Another way of employing salicylic acid is to add it to glycerine in sufficient quantity to form a cream, with a little creosote, and apply it on lint. For either of these applications may be substituted the *ointment* suggested by Brooke, which is composed as follows:—

R	Zinci oxidi	..	..	..	..	3ij
	Amyl. pulv.	..	..	..	..	3ij
	Vasellini albi	..	..	..	..	3ss
	Hydrarg. oleatis (5 per cent.)	..	..	..	..	3j
	Acid. salicyl.	..	..	..	..	gr. xx
	Ichthyol.	..	..	..	..	℥xx
	Ol. lavandulæ	..	..	..	..	q.s.
	Ft. ung. <sup>1</sup>					

It should be vigorously rubbed in night and morning, the part being then thickly dredged over with potato-starch powder. I have seen excellent results follow the use of this ointment. If the epidermis should break, the surface should be dressed with some simple antiseptic application, such as boric acid ointment.

Bactericidal applications are sometimes very useful.

<sup>1</sup> "A Preliminary Treatment of Lupus Vulgaris," *Brit. Journ. Derm.*, May, 1890, p. 145.

Mercurial plasters may be applied, or an *ointment of one or two grains of bichloride of mercury to the ounce of vaseline* may be used. Prof. White of Boston says that by this method a cure is effected in a few months. Doutrelepont<sup>1</sup> applies a *solution of corrosive sublimate of 1 in 1,000* under guttapercha tissue, and says the method has been very successful in his hands. Dubois-Havenith,<sup>2</sup> on the other hand, who has frequently tried it, has had "variable, but always incomplete, results." *Bichloride of mercury* has also been injected into lupus patches by Doutrelepont, Tansini, and others, with a beneficial effect.

Chemical caustics are often very useful if applied in a thorough manner. Here the question of anæsthetics naturally presents itself. The injection of cocaine round the patch of lupus to be operated on will often dull the sense of pain sufficiently for the purpose in view. The advisability of a general anæsthetic, and the choice of an agent, if such be thought necessary, must depend on the special circumstances of the case. Among chemical caustics *nitrate of silver* holds the first place, and is still the favourite remedy for lupus with some very experienced dermatologists. It acts only on the diseased tissue, and may thus be very freely applied. The patch should be deeply grooved with the solid stick in various directions till the whole is destroyed. The procedure is extremely painful both at the time of the operation and for some hours afterwards. It has the advantage that it causes no bleeding, and the parts require no special attention between the visits. Equally good results, however, can be obtained by milder measures. *Acid nitrate of mercury*, applied on the end of a probe tipped with cotton-wool, is a more efficient caustic than nitrate of silver; but it is also more painful, and gives rise to unsightly scars. *Lactic acid* is

<sup>1</sup> *Monats. f. prakt. Derm.*, 1884, No. 1.

<sup>2</sup> *Loc. cit.*, p. 107.

useful for the treatment of ulcerated surfaces ; it causes comparatively little pain, but as it acts impartially on sound and on diseased tissue the neighbouring parts must be protected when it is used. It is most applicable to lupus of mucous membranes. *Arsenical paste* destroys lupus tissue, but the application causes severe pain, and arsenical poisoning is not impossible unless great care be taken. The following is Hebra's formula :—

Arsenious acid ..	..	..	..	..	gr. x
Artificial cinnabar ..	..	..	..	..	ʒss
Rose ointment ..	..	..	..	..	ʒss

This is spread on linen and applied evenly on strips, over which a piece of lint is firmly bandaged. The caustic should be left *in situ* for twenty-four hours, when the parts are carefully cleansed and the paste re-applied. *Chloride of zinc* is extremely useful as a caustic agent, especially as a supplement to surgical measures. It may be applied in solution of equal parts of chloride of zinc and alcohol, or as a paste :—

Chloride of zinc ..	..	..	..	..	ʒxvj
Powdered opium ..	..	..	..	..	ʒjss
Hydrochloric acid ..	..	..	..	..	ʒvj
Boiling water ad ..	..	..	..	..	ʒxx

Dissolve. To one ounce of the solution add two drachms of wheaten flour (Middlesex Hosp. Ph.).

*Pyrogallic acid* is extremely valuable in most cases. It has a selective action on the tissues, and as a rule causes comparatively little pain ; to this rule, however, there are exceptions, a fact which the practitioner will do well to bear in mind. It may be applied in the form of a plaster mull or as an ointment (10 per cent.), or in a saturated ethereal solution. The latter form is much used by Besnier. He brushes the solution over the affected surface, which is then covered with traumaticin ; this is repeated till all the lupus nodules have been



destroyed. Pyrogallic acid is particularly useful in the after-treatment of patches that have been subjected to erosion, scarification, or cauterisation. It may be combined with *salicylic acid in 10 per cent. in collodion*, or in the form of ointment.

The mechanical treatment of lupus includes excision, erosion, scarification, cauterisation (*a*) simple and (*b*) electrical, application of the Finsen light and X-rays.

*Excision* gives excellent results if the whole of the disease can be removed without leaving too large a breach of surface. The operation is chiefly applicable in the case of limited patches situated on the limbs or trunk. Healing of the wound is greatly aided by transplantation of skin after the method of Thiersch. In this way comparatively large gaps in the tegumentary covering have been filled up. The most thorough removal of the lupus tissue, however, affords no absolute guarantee against recurrence. Excision is, for obvious reasons, seldom, if ever, applicable in lupus of the face.

*Erosion* or scraping is useful when the disease is extensive. The ulcerated surface is scraped out with Volkmann's spoon, just like a tuberculous joint. The instruments used vary in size and shape, according to the different parts on which they have to be employed. The scraping must be done with some amount of force; and it will be found that the underlying healthy tissue is much tougher than the diseased structures, which break down readily under the curette. A practised operator knows when he has got down to healthy tissue by the resistance which he feels. Bleeding may be checked by pressure with pieces of cotton-wool. However thoroughly the lupus tissue may seem to have been scraped away, fresh nodules are almost certain to make their appearance. They should be at once scraped away or broken up. For this purpose a double-threaded screw

instrument devised by me will be found useful. Some powerful antiseptic, such as strong carbolic acid or bichloride of mercury (1 in 2,000), should be used to wash the raw surface, and the wound should be dressed antiseptically. Erasion is a valuable method of treatment, but as a rule it requires to be supplemented by chemical agents such as pyrogallic acid or chloride of zinc, which complete the work of destruction. Veiel supplements erasion by multiple puncture, stabbing the scraped surface in hundreds of points with a narrow-bladed knife. These stabs are as close together as possible. The process is repeated three, five, and even eight times within a fortnight or a month. The following method, which was communicated to me by Lord Lister, answers well: After the diseased tissue has been thoroughly scraped out and the bleeding has ceased, the holes are filled up with fuming nitric acid, which, after being allowed to saturate the tissues for a few moments, is neutralised by a solution of bicarbonate of soda. When the effervescence has entirely ceased the part is dressed in the usual way. There is hardly any subsequent pain, and the results are excellent.

*Scarification* consists in ploughing up the diseased patch in close-set parallel furrows, so that all the nodules are broken up. A lupus patch may be scarified in different directions, the lines crossing each other so that no point shall escape the knife. The secret of successful scarification is to use very sharp instruments, and to multiply the incisions so as to cover the whole surface in such a way that the diseased tissue shall be, as it were, thoroughly minced up and the vessels destroyed or occluded. The scarification should be carried below the level of the new formation without going beyond the limit of the true skin. The treatment should always be begun at the edge. Scarification leaves a better scar than scraping, and is therefore more

suitable when the face is the seat of the disease. The results on the whole are satisfactory, though recurrence takes place in about as large a proportion of cases as after other methods of treatment. The objections to it are that it necessarily requires a long time, during which the sufferer's patience or health may give way; it is also attended with a considerable amount of pain, and the loss of blood which it causes may in the aggregate be of serious consequence in a weakly patient. A still graver objection against it is urged by Besnier, who states that secondary tuberculous infection is very likely to be caused during the process of scarification, particles of the diseased tissue being carried away in the blood and inoculated in some other part of the surface. Though I have operated on a large number of cases in this way, I have never seen such a result follow.

*Cauterisation* with Paquelin's cautery is a severe method, which should hardly ever be used except when it may be of importance to destroy the disease very rapidly. It destroys lupus in a minimum of time, but at the expense of a maximum of cicatrix, with all the subsequent possibilities of deformity and disablement. The method should be reserved for the destruction of small recurrent nodules. The galvano-cautery is more generally applicable, and its effect is much more under the operator's control. It may be used by way of puncture, the affected tissues being, as it were, tattooed with the incandescent point, with which the apple-jelly nodules are individually attacked. Galvano-cauterisation can be used as a primary method, the affected surface being, as in the case of scarification, first attacked at the edge. It is also very useful as a supplementary method, after erosion or scarification, for the destruction of recurrent nodules. Besnier thinks that the use of the galvano-cautery is much less likely to be followed

by auto-inoculation than procedures which are attended with bleeding.

The treatment by means of *Finsen light* has long passed out of the experimental stage. Though not the best treatment for all cases, it is unequalled in certain types of the disease, and when combined with other measures it is probably the best all-round treatment for the majority of cases of lupus. In non-ulcerative superficial cases the light alone is sufficient. Where there is much infiltration, or scarring, the process of repair is sometimes hastened by a short course of X-rays after the nodules have been partly broken down by the light. If there is deep ulceration it is better to begin with the X-rays, any remaining or outlying nodules being then individually exposed to the light. In more extensive cases, also, it is better to use the X-rays first. The application of *pyrogallie acid* in a 5 per cent. ointment is a useful adjuvant in reducing thickening of tissues. But in *very* extensive cases, especially if there is much fibrosis or massive infiltration, or if the disease is rapidly spreading, neither the light nor the X-rays can be recommended. When mucous membranes are the seat of lupus the X-rays are more effectual than the Finsen light. Of both Finsen light and the X-rays it must be admitted that the good results are not always lasting.<sup>1</sup>

The fact that the primary focus of lupus is often situated within the nose supplies an explanation of the difficulty of permanently curing the disease. As long as the original source of the trouble remains, re-infection of the skin may take place again and again. My attention was first drawn to this source of difficulty in the treatment of lupus by Finsen. °

<sup>1</sup> For reports of cases under the care of the author, assisted by Dr. Dore, see "Light and X-ray Treatment of Skin Diseases" (1907).

An important practical point that must be borne in mind in connection with all the severer methods of treatment is to know when to hold one's hand. When inflammation is severe, and the affected tissues are proportionately irritable, soothing applications must be used for a time. For this purpose *calamine* or *lead lotion* will be found most useful. Radical treatment should not be proceeded with till the inflammatory condition has been subdued.

With regard to the choice of a method adapted to the situation of the disease, it may be stated in general terms that on the face the Finsen light or X-rays, and on the trunk and limbs erosion, followed by galvano-cautery, are the most suitable procedures. In either case the initial advantage obtained by such treatment may need to be followed up by chemical caustics and parasiticidal agents. Brauchbar<sup>1</sup> speaks highly of dermoplastic treatment, especially for poor patients who cannot afford to go through a prolonged course of treatment. In some of his cases large patches of lupus were extirpated, the operation being followed by Thiersch grafting, or by grafts with or without a pedicle, the cosmetic results being very satisfactory. There is no general formula for the treatment of lupus. Each case must be treated in accordance with its requirements, and each of the methods described has its own special advantages when used in the proper circumstances. As already said, the practitioner will find it necessary to study the manner in which the disease responds to different modes of treatment, always keeping in mind the object to be aimed at—namely, the destruction of the new growth. In the vast majority of cases it will be found that different methods will have to be employed at different stages, while occasionally

<sup>1</sup> *Wien. klin. Rundsch.*, Nov. and Dec., 1901 (abstr. in *Brit. Journ. Derm.*).

it will be advantageous to suspend all treatment for a time until the disease has, as it were, lost the tolerance which prolonged medication has produced. The application of chemical substances will cure only milder forms of lupus, where the disease is superficial. On the other hand, there is no mechanical method, however severe, that will infallibly prevent recurrence. The best results will be obtained by a judicious combination of mechanical with chemical treatment. The patient should be kept for a considerable time under strict observation, so that any fresh outbreak of the disease may be treated at once.

Constitutional treatment must be carried out on general principles. In a certain proportion of cases the patients present no evidence of ill-health, and therefore require no internal medication. There is no internal remedy that has any specific effect on lupus. *Arsenic*, the administration of which is a kind of ceremonial observance which some practitioners consider indispensable in all cases of skin disease, is useless. Besnier gives *iodoform*, and Morel-Lavallée has tried subcutaneous injections of the same substance with some success; but the results have not been sufficiently convincing to bring the method into general favour. The same may be said as regards *iodide of potassium*, advocated by Duhring. If the patient is of scrofulous constitution the treatment appropriate for that condition is indicated. Cod-liver oil in such cases appears to have a decidedly favourable effect. Good food, sea air, and attention to hygiene are powerful adjuvants in the treatment of scrofulous patients. Other unfavourable conditions—such as anæmia, chlorosis, etc.—must be dealt with by appropriate measures.

*Tuberculin*, although certainly not the specific which it was at first believed to be, has still, in my opinion, a distinct place in the therapeutics of lupus. The injections sometimes cause an immediate reaction of such



violence that it quickens the activity of the process, and in the most favourable circumstances the temporary improvement that follows them speedily disappears.<sup>1</sup> Notwithstanding this, tuberculin seems to modify the lupus process in such a way that the disease becomes more amenable than before to local treatment. My own experience has been decidedly encouraging, all the more since my earlier expectations were grievously disappointed. Of twelve cases in which I gave the tuberculin treatment a full trial there was not one that did not within a comparatively short time relapse to a condition as bad as before the treatment. Further observation, however, has convinced me that the tuberculin, while failing by itself to effect a cure, prevents recurrence when the disease has been destroyed by other means. The patients referred to were, after the failure of the tuberculin, treated by the ordinary chemical and mechanical methods, and may now be looked upon as practically cured. As treatment of the same kind had been tried in all these cases for years previously without permanent success, the apparent abolition of the tendency to recurrence must be placed to the credit of the tuberculin. Neisser has habitually used the old tuberculin in treatment as well as in diagnosis since its discovery eighteen years ago. Sir T. M'Call Anderson, who had a most extensive experience of its use, lays down the following rules for its administration :—1. The initial dose, in the case of an adult, should not generally exceed  $\frac{1}{2}$  c.c. of 1 in 1,000, and sometimes it is safer to begin with  $\frac{1}{4}$  c.c. 2. Should a dose have little or no effect it is generally safer to give a second of the same strength as the preceding one, the later often acting much more severely than the earlier one. 3. The more pronounced

<sup>1</sup> It is worth mentioning that lupus sometimes undergoes considerable temporary improvement under the influence of an attack of erysipelas.



the constitutional reaction the longer should be the interval before the next injection. 4. Much greater care must be exercised in increasing the doses in the earlier than in the later periods of the treatment, when the system has gradually got "acclimatised" to it.<sup>1</sup>

I have tried tuberculin (TR) in a series of cases, with results which, though brilliant at first, have since proved disappointing.<sup>2</sup> Tuberculin treatment by Wright's method is also of value and may be combined with other measures. *Thyroid feeding*, recommended by Byrom Bramwell, has not been effective in my hands in lupus. In some cases of scrofuloderma, however, it has been of service. I have given *urea* in several cases, but the results have been disappointing.

At the International Congress of Dermatology, held at Vienna in 1892, Hans von Hebra showed some cases of lupus which he had treated by *subcutaneous injections of thiosinamin*. The injections caused local reaction without constitutional disturbance, and seemed to influence lupus tissue favourably and to make cicatricial tissue soft and pliable. Tommasoli<sup>3</sup> tried injections of dog's serum in lupus, but with no very brilliant results.

<sup>1</sup> *Brit. Journ. Derm.*, Sept., 1905, p. 331.

<sup>2</sup> Morris and Whitfield, *Brit. Med. Journ.*, 1897.

<sup>3</sup> *Riforma Medica*, May 20, 1893.

## CHAPTER XX

### GENERAL INOCULABLE DISEASES (*continued*)

#### SYPHILIS

**Syphilis** is a disease caused, as is now generally recognised, by the *Spirochaeta pallida* of Schaudinn and Hoffmann. The poison is inoculated—that is, conveyed by direct contact; an abrasion of surface on the part of the recipient facilitates the introduction of the virus, but is by no means a necessary condition of infection. The disease is, in the vast majority of cases, transmitted during sexual intercourse, but infection may take place on any part of the body in which the poison is implanted. It may be acquired, or it may be inherited—either from a diseased father (sperm inheritance) or from a diseased mother (germ inheritance). Germ inheritance may take place whether the mother be the subject of syphilis at the time of conception, or whether she contract the disease at any period during gestation; thus, as pointed out by Hutchinson, the child has a much greater chance of being infected by the mother than by the father. Both parents may, of course, be syphilitic, and the offspring will in these circumstances have a double chance of being infected; but there is no evidence to show that the resultant disease is of a severer type than when the poison is drawn from one source only. What is inherited in syphilis is not merely, as in the case of tuberculosis, a predisposition to a particular disease, but the actual virus itself, modified, it may be, by its passage through the parent or parents:

In whatever way the poison is transmitted, the disease is always one and the same ; but the severity of its manifestations may be very greatly modified either by the constitutional peculiarity of the patient, or by treatment he undergoes, or by a combination of both these factors.

Syphilis is really a specific exanthematous fever, "diluted by time," to use the happy expression of Moxon. It presents a close analogy to small-pox ; for instance, if we suppose the eruptive stage to be drawn out into months instead of days, and the sequelæ to come on after years instead of weeks, the following stages can be recognised in a typical case of acquired syphilis : (1) a *latent period*, which intervenes between the date of contagion and the earliest sign of local infection ; (2) an *incubation period*, which includes the formation and development of the chancre and enlargement of the nearest lymphatic glands ; (3) a period of *invasion*, including the specific fever with its associated phenomena up to the appearance of the general eruption ; (4) an *eruptive period*, with early and late development of characteristic lesions on the skin and mucous membranes, and in the glands ; (5) a period of *quiescence* ; (6) a period of *sequelæ*, consisting of late local so-called "tertiary" lesions. For practical purposes Ricord's division of syphilis into three stages—primary, secondary, and tertiary—is convenient, and corresponds with fair accuracy to natural divisions in the clinical history of the disease. It is necessary, however, that a clear conception should be formed of the exact state of things indicated by these terms. In the primary stage, during the development and continuance of the initial lesion, syphilis is a local disease, and the spirochæte can be conveyed only by direct contagion from the local sore. In the secondary stage—representing the eruptive period of a specific fever—syphilis becomes a general disease,

which manifests itself by constitutional symptoms due to the diffusion and multiplication of the spirilla in the blood: in this stage the blood and all the fluid tissues contain the specific virus; and the infection can be transmitted by the secretion from any of the lesions, and by the saliva and other normal fluids. In the tertiary stage syphilis once more becomes a local disease; it is then a disease not of the blood but of the tissues, and the lesions have only local contagious properties.

It must be understood that in many cases it is not only the specific organism of syphilis that is inoculated. The sores become infected by various micro-organisms, such as those of soft sore and phagedæna, which cause inflammation and suppuration, and these organisms are often conveyed with the spirochæte. These extraneous infective matters produce lesions of a peculiar kind, which may complicate and in some cases overshadow the specific effect of the syphilitic poison.

**Etiology.**—The *Spirochæta pallida* is a delicate, spiral, slightly refractive organism 6–15  $\mu$  in length and  $\frac{1}{2}$  to  $\frac{3}{4}$   $\mu$  in breadth. It has 10–26 well-marked regular undulations, which are seen when the organism is at rest, as well as when it is in motion. It tapers at both ends, which bear cilia equal in length to 4 to 6 spirals. Schaudinn not only observed vibratile cilia at each pole, but recognised longitudinal division of the organism in specimens with two cilia at one of the poles.<sup>1</sup>

The spirochæte has been found not only in the primary chancre and secondary lesions of acquired syphilis, but also in the blood and blood-vessels, and in the lymphatics. It has also been demonstrated in the saliva

<sup>1</sup> Hartmann and Prowazek, quoted by Metchnikoff in "A System of Syphilis," edited by D'Arcy Power and J. Keogh Murphy, p. 75.

and urine, and in rare cases in the cerebro-spinal fluid.<sup>1</sup> Despite many negative results, several observers have shown its presence in tertiary lesions. Up to the present time it has not been found in parasymphilitic affections such as tabes and general paralysis.

In hereditary syphilis the spirochæte occurs in abundance in nearly all the organs and fluids of the body. Large numbers of the organism are found in the liver and spleen and in the blood. The bile and urine may also contain them, and they have been shown to exist in the fluid contents and in the walls of the bullæ of syphilitic pemphigus. As yet, the spirillum has not been found in seminal fluid, and its presence there can only be assumed. Neither is there any evidence of infection of the spermatozoa, but the organism has been demonstrated by Levaditi and Sauvage in the ovary of the child of an infected mother, and numerous observers have found it in the placenta.

Neisser, Baerman, and Halbenstädter in Batavia; Finger and Landsteiner, as well as Kraus and Prant-schoff, in Vienna, have found the spirochæte in all cases of primary infection in the lower orders of monkeys, as well as in anthropoid apes. Several observers have succeeded in producing syphilitic keratitis in rabbits and dogs by inoculating them with syphilitic products from men and monkeys, and typical spirochætes have been found in these lesions.

Of the numerous organisms described in connection with syphilis before the discovery of the spirochæte, the bacillus of Lustgarten, described in 1885, and the protozoon of Siegel, called by him *Cytoryctes luis*, attained the greatest prominence. At the time of the publication of Siegel's book, Metchnikoff had been making experimental inoculations of syphilis in monkeys. The resemblance of syphilis to dourine of horses led him to

<sup>1</sup> Metchnikoff, in "A System of Syphilis," p. 60.

think that it was caused by a trypanosome or some similar organism. In his account of the early researches on the microbiology of syphilis, which is here followed, Metchnikoff<sup>1</sup> refers to his meeting with Bordet at the International Health Congress at Brussels in 1903, when the latter communicated the result of his researches, made in co-operation with Gengou, as a result of which they found in an indurated chancre a number of fine spirilla, rolled like a corkscrew and very faintly stained. Being unable, however, to find this organism in five primary cases, either in the lymphatic glands of the groin, in the papules of the skin, or in the blood, they did not pursue their investigations. Metchnikoff then undertook the search for spirilla in syphilitic products obtained from monkeys, which, in conjunction with Roux, he had succeeded in inoculating with syphilis in 1903. The results were at first completely negative, and in the *Annales de l'Institut Pasteur*, 1904, this author and Roux expressed the opinion that the disease could not be attributed to any form of spirillum, but that it was probably caused by some non-mobile organism. Schaudinn, to whom had been entrusted the work of investigating the *Cytoryctes luis* of Siegel, and with whom Hoffmann was associated, not only succeeded in proving that the minute mobile organism which Siegel had obtained in the blood and exudations of syphilitic patients was not really a micro-organism at all, but at the same time found in the liquid taken from a chancre in March, 1905, some spirilla, exceedingly delicate in form, which exhibited the movements of true spirochætes. Schaudinn was soon able to announce that two varieties of spirilla are to be found in the genital organs, both healthy and diseased—the *Spirochaeta refringens*, found in non-syphilitic affections as well as in some ulcerated syphilitic lesions, and

<sup>1</sup> *Op. cit.*



the *Spirochæta pallida*, found only in syphilis. The first of these is much larger than the second; its spiral turns are fewer in number, although better marked; it is readily stained by different methods, especially Giemsa's, and more intensely so than the spirillum of syphilis. In their first communication, which appeared in May, 1905, Schaudinn and Hoffmann concluded that true spirochætes are to be found in fresh preparations, not only on the surface of syphilitic papules and of primary chancres, but also in the depth of the tissues and in the enlarged inguinal glands of syphilitic cases, diagnosed clinically.

**Primary lesion.**—The primary lesion generally appears from three to four weeks after exposure to contagion—hardly ever less than two, or more than six, weeks. The appearance of the lesion varies according to its situation. When situated in a typical position, as on the glans penis or the labium, the first perceptible change is a minute red spot. In a week or ten days this grows into a nodule with definite margin. A marked characteristic of this nodule is its hardness. The induration is seldom very distinct before five weeks have elapsed from the date of inoculation. There is usually more or less itching, though this may be totally absent. Ulceration generally takes place, and the resulting sore presents a minutely granular floor, secreting a small quantity of thin liquid, and bounded by a definite but not raised border. The base of the ulcer is distinctly indurated. Sometimes the lesion is limited to a desquamating papule which does not ulcerate, but may undergo involution so rapidly that the patient, unless he has been on the look-out for it, may be unconscious of its presence. On the other hand, it may persist for several months. Simultaneously with the induration of the chancre, the nearest set of lymphatic glands becomes enlarged and hard. The primary sore has a



natural tendency to heal, the induration gradually disappearing and a scar being left. When unmodified by treatment the primary lesion seldom lasts less than two months. There is usually only one primary sore, but occasionally there may be several, depending on the number of points at which the virus has been inoculated at the time of contagion. I have seen five sores, having the characters of the hard chancre, on a patient's arm at the same time.

Chancres, when acquired from sexual intercourse, are generally situated on the frænum and inner surfaces of the prepuce. The glans, the margin of the prepuce (where the chancre is often multiple), the orifice of the meatus, the mucous membranes of the urethra within the meatus, and the skin of the penis, are also common situations. In the female the inner surfaces of the labia majora and the nymphæ are the most frequent sites of hard sores ; they are also met with on the clitoris and on the os uteri. The vagina seems to be protected from inoculation by the thickness of its epithelium. Chancres are more frequently multiple in women than in men, probably owing to the greater opportunities of auto-inoculation. Extragenital chancres occur on the fingers (as in midwives and surgeons), on the nipples (in wet nurses), on the lips, cheeks, tonsil, or tongue, from kissing, smoking infected pipes, drinking out of infected glasses, etc. ; they may also develop on vaccination scars or on any parts of the body where the poison may be inoculated by a bite or other injury. Dentists' instruments have occasionally been vehicles of the syphilitic poison.<sup>1</sup> The disease has been communicated by tattooing. A hard sore has been known to develop on the penis of an infant, after ritual circumcision, when the method — now abandoned in Great Britain — of stopping bleeding

<sup>1</sup> Bulkley : New York Odontological Society, 1890.

by suction was adopted. Hard sores may also be met with in extraordinary situations as the result of unnatural vice, but probably the great majority of extra-genital chancres are contracted accidentally.

Wide differences are observed in the appearance of chancres, these being chiefly due to the anatomical peculiarities of the part on which the chancre is situated. Thus, a chancre on the glans is usually definitely circumscribed as well as indurated, whilst a chancre of the cheek presents a diffuse tense œdema in which the edge of the sore is lost. The chancre that affects the bed of the nail is scarcely ever indurated, and often suppurates very freely (Hutchinson). On other parts, and especially on the face, chancres sometimes attain an enormous size, and may lose the ordinary characters of infecting syphilitic sores and simulate malignant disease. Again, chancres are greatly influenced by treatment, the administration of mercury lessening induration to a remarkable extent and shortening the course of the lesion. Apart, however, from differences in appearance determined by anatomical conditions, and modifications caused by treatment, great variations are observed in chancres. In the incubation period there may be nothing beyond a small dusky spot which lasts for a few days and then disappears, leaving a brown stain. On the other hand, there may be an obstinate ulcer with marked induration, lasting a year or more, and leaving a scar. The induration may recur from time to time, even as long as seven or eight years after its complete disappearance (Hutchinson).

The primary sore has a protective influence like that of vaccination, but, like the latter also, the immunity which it confers is neither absolute nor permanent in all cases. Instances of reinfection are not very rare, but the disease is usually much milder in the second than in the first attack.

As already said, there is frequently a double inoculation, infective matter of inflammatory origin being introduced at the same time as the specific virus of syphilis. In this way "soft" sores are produced. These sores are hardly ever seen except on the genitals. They are usually multiple, and can reproduce themselves in the patient by secondary inoculation. The typical soft sore has a sharply-cut, punched-out margin, and a grey, unhealthy-looking base with a considerable zone of inflamed skin around it. The lymphatic glands in the neighbourhood become enlarged, and often suppurate, and the several glands of a group become matted together by inflammatory exudation. It is probable that soft sores are produced by a specific micro-organism, the streptobacillus of Dugrey.

It must be clearly understood that although the infective sore is called, in accordance with its most obvious physical character, "hard," and the non-infecting sore by way of distinction "soft," neither of these characters is sufficiently constant to be made an absolute criterion of the nature of a given sore. An infecting sore is not always hard; on the lip, for example, there is seldom any marked induration. On the other hand, a sore at first soft may after a few weeks become indurated, and be followed in due course by the development of constitutional syphilis.

Herpes, which, as already said, may occur on the genitals in either sex, sometimes follows both infecting and non-infecting sores. A previously-existing herpes may conceal a chancre, a fact which should always be borne in mind when the herpes occurs in newly-married persons.

The venereal sore may become the seat of phagedæna. The ulcerative process assumes a more violent character, and spreads rapidly both in area and in depth; the edge of the ulcer becomes irregular, and sloughing fre-

quently takes place. The ulcer is very painful, and serious hæmorrhage is sometimes produced from erosion of the arterioles. Great destruction may be wrought by this process, the penis being sometimes entirely eaten away. The contagion, which probably always originates from venereal sores (Hutchinson), may spread through a hospital, attacking all operation and other wounds.

By the term "mixed sore" is generally understood a syphilitic chancre contaminated by the presence of septic material or a sore the result of a double infection. In such sores in recent times the presence both of the streptobacillus of Ducrey, which he regarded as characteristic of soft sores, and of the *Spirochæta pallida* has been demonstrated.

**Secondary lesions.**—If a case of syphilitic infection be left to itself, symptoms of constitutional disturbance may be expected to show themselves in from seven to nine weeks after inoculation. Their onset may be prevented or indefinitely delayed by proper treatment, but sometimes they will show themselves, even after a prolonged administration of mercury, as soon as the drug is discontinued. The onset of the secondary or eruptive stage is, in the majority of cases, marked by little or no constitutional disturbance. In some cases, however, it is ushered in by distinct febrile phenomena. The patient feels unwell, languid, and weak, and complains of loss of appetite, with headache and pains in the joints, muscles, and bones, especially those lying just under the skin—the tibiæ, ulnæ, and clavicles. All these symptoms are usually aggravated at night. The temperature curve often shows a marked evening rise. Occasionally the fever runs extraordinarily high, as in a case reported by Burney Yeo, in which for several weeks it ranged from 100° F. to 104° F. The pyrexia may be out of all proportion to the skin eruption; but



PLATE XXXIII.—FOLLICULAR SYPHILIDE THIRTEEN WEEKS  
AFTER INFECTION (DR. WHITFIELD'S CASE).



generally, when the eruption is unusually severe, the fever runs higher than in ordinary cases (Hutchinson). In rare cases the constitutional disturbance is so great, and lasts so long, that the nature of the disease may not be suspected for some time, the symptoms being attributed to some obscure form of toxæmia. The eruption is erythematous in character, and is known as syphilitic roseola. It shows itself as a macular mottling, resembling measles, but rather more dusky, scattered more or less thickly over the chest and abdomen. The rash varies in intensity according to the temperature and the amount of clothing worn. It is very evanescent, often disappearing in a few hours, and coming out again as suddenly. Coincidentally with the roseola, slight superficial ulcers form on the tonsils; these are often so painless and so transient that the patient may be unaware of their existence. Even if there be no definite ulceration of the throat, the mucous membrane is congested, being, in fact, the seat of an eruption similar to the roseola on the skin. The rash generally begins to fade within a fortnight of its appearance, giving place to a papular or follicular (Plate XXXIII.) eruption which comes out on the trunk, limbs, face, and neck. The papules are small, tense, and firm, with smooth or slightly scaly tops. They increase in size by peripheral extension, the older central parts undergoing atrophy or necrosis. Occasionally the eruption assumes a corymbose form (Plate XXXIV.). Sometimes, though very rarely, vesicles are formed, or suppuration may supervene and give rise to pustules.

In the early stage the pustules dry up and form scabs, underneath which no ulceration takes place, and consequently no scar is left. In the later stages the breaking down of the papule is followed by an ulcerative process with rapid drying of the secretion into crusts; as the ulcer spreads at the edge, each successive layer



of crust is necessarily larger than the one immediately above it, and a pyramidal structure somewhat resembling a limpet-shell is thus formed, to which, from its shell-like appearance, the term "rupia" is applied. Sometimes the crusting process begins in the drying up of a bulla. Rupial lesions are hardly ever met with till from six months to a year from the appearance of the primary sore, and then usually only in persons who have neglected treatment or whose health has broken down. Rupia always leaves scars, and is symmetrical.

Hyperæmia of the papillæ in particular spots gives rise to red patches which may be evanescent (roseola), or may persist as isolated blotches for a longer or shorter time (macular syphilides). These maculæ, which vary in colour from a delicate rose to a pale violet or dusky-bluish or even brownish red, have a smooth surface, and, being partly infiltrations, do not disappear completely on pressure. They are seen chiefly on the chest and abdomen, often on the flexor aspects of the extremities, seldom on the face. They cause no subjective symptoms. Scattered among the maculæ or on them may often be seen papules (maculo-papular syphilides). These syphilides last a variable time, and leave stains the depth of which is proportionate to the length of time the lesions have persisted. A remarkable property in these and other forms of secondary eruption is that they are made more conspicuous by the action of cold on the surface of the skin. In association with the macular syphilides, alopecia, either general or in patches, is often observed. Alopecia areata is sometimes, however, the earliest sign of secondary syphilis.

Hyperæmia of the papillæ is often followed by infiltration of inflammatory products, and in this way a papule is produced (papular syphilide). Papules, as already said, often arise in connection with the maculæ; they may also develop independently. Two varieties



PLATE XXXIV.—CORYMBOSE SYPHILIDE SEVENTEEN WEEKS AFTER  
INFECTION (DR. WHITFIELD'S CASE).

*(Reproduced from the Brit. Journ. Derm., 1901.)*



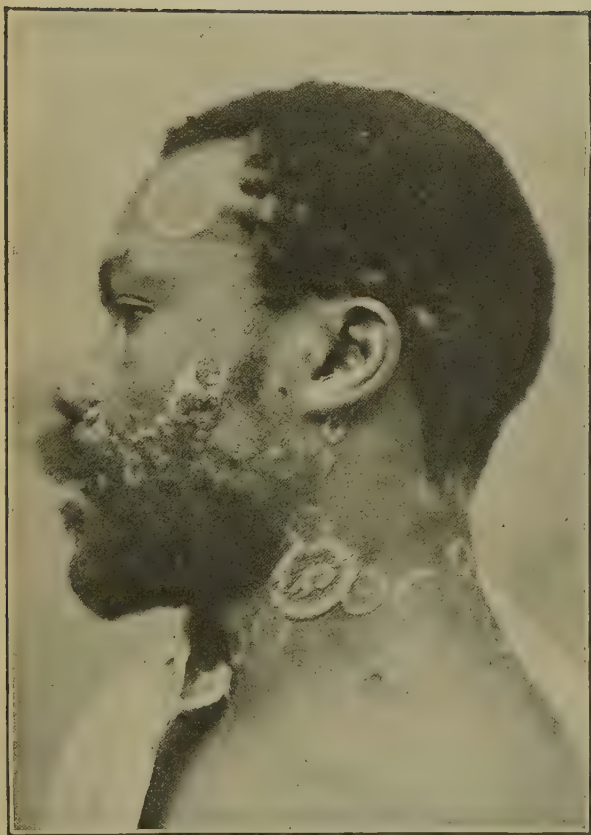


Fig. 9.—Annular Syphilide in a Negro.  
(*Gilchrist.*)

of these lesions may be distinguished—the small and the large. The former vary in size from a pin's head to a linseed; they are at first red, afterwards brownish or of a raw ham or coppery colour, have a shining surface, and feel like small shot. They are thickest over the abdomen, chest, shoulders, and upper limbs, more sparsely scattered over the back and the legs. Involution takes place slowly, and the stain left behind is long in dying away, and is sometimes followed by a shallow depression which may last for years. The small papule is not very common as an early lesion, and is generally looked upon as a sign that the disease is of a severe type. The large papule may develop directly out of the macular syphilide, or may be produced by the gradual enlargement of the small variety. It may be as large as a pea, but is generally flattened on the surface. It affects the whole body pretty impartially, sometimes forming a kind of circlet on the brow round the margin of the hair (*corona veneris*). The evolution of the papule is irregular. Some persist as such and increase in size by peripheral extension, undergoing involution meanwhile in the centre. As they shrink they become scaly on the surface; if the formation of scales is at all active, the lesions often come to bear a tolerably close resemblance to patches of psoriasis (Plate xxxv. and Fig. 9). Desquamation frequently persists after complete subsidence of the papule. In other cases, as already said, the papules become transformed into vesicles and pustules. With regard to the vesicular forms, it must be noted that they have no affinity with the eczematous process; the latter, as pointed out in a previous chapter, is catarrhal, but in the production of syphilitic lesions of the skin the element of catarrh has no place.

A further stage in the development of the papule is reached by the occurrence of overgrowth of the papillæ, giving rise to warty conditions, the favourite seats of

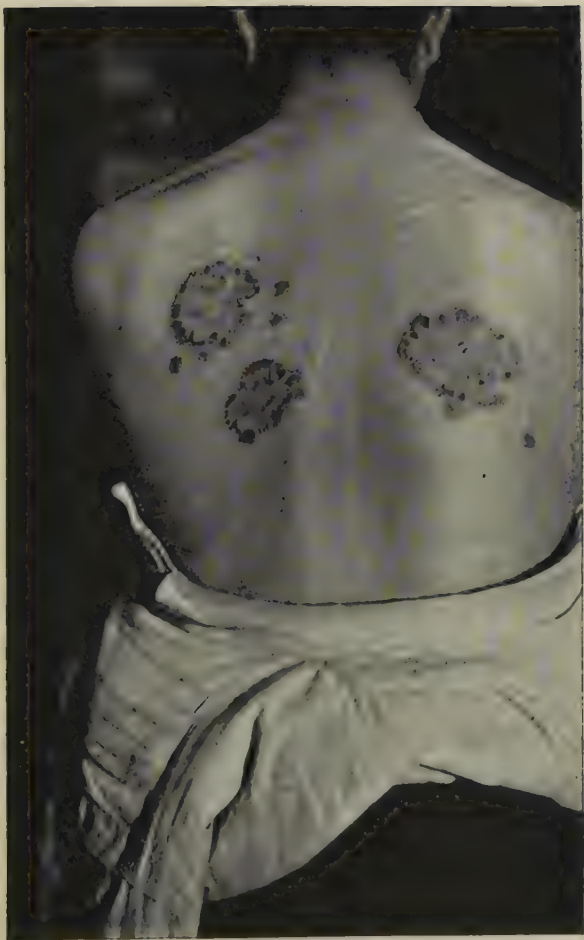


PLATE XXXV.—CIRCINATE SQUAMOUS SYPHILIDE  
(DR. WHITFIELD'S CASE).





which are the tongue and the genitals. If the lesion is situated in a moist part, the hypertrophied papillæ are covered with sodden white epithelium (moist papule, or mucous papule or patch). A more marked degree of hypertrophy transforms the moist papule into a mucous tubercle or condyloma. The difference between warts and condylomata is that while in the former the overgrown papillæ are free, in the latter they are welded into a coherent mass by swelling of the intervening tissue.

At what may be called the height of the eruptive stage of syphilis the lesions present almost every conceivable variety of type. Not only the simple elementary lesions that have been described may be seen mingled together in every phase of development, but mixed forms, of a complexity that baffles description, may be observed. In this way almost every known skin affection may be more or less closely simulated. Thus one secondary eruption will simulate a copaiba rash, or varicella, or even variola; another, lichen planus; another, impetigo or acne; another, alopecia or leucoderma. Purpura is not unfrequently among the manifestations of constitutional syphilis, and pigmentation of the skin may be produced without a pre-existing lesion by transudation of the colouring matter of the blood. At a later period this polymorphous character of the eruption usually gives place to simple ulcerative or squamous lesions. The eruptive period as a whole may last for months. As regards the duration of the individual lesions little is known. The stains will often last for years. In one case which I have seen the pigmentation was still visible more than twenty years after the secondary lesion of which it was a legacy had disappeared.

There are certain general characters which distinguish secondary eruptions. Though no single one of these is

pathognomonic, the combination of two or more of them affords *primâ facie* evidence of a syphilitic origin, and the combination of several is quite conclusive. In the first place, secondary eruptions are usually *symmetrical*: This arises from the fact that syphilis in the stage represented by these lesions is a general and not a local disease. Again, secondary eruptions are *polymorphous*. This is the most distinctive characteristic of the eruption taken as a whole. Not only are the individual lesions multiform, but the grouping of them presents the greatest diversity of appearance. Sometimes the papules are arranged in lines like lichen ruber planus; or the papules, pustules, etc., may be set in isolated patches or irregular clusters; or the arrangement may be corymbose, several lesions being clustered together, or a large one being surrounded by a circlet of smaller ones, as in erythema iris. Secondary lesions, both on the skin and on the mucous membrane, have a tendency to assume crescentic outlines. Not only may all the different elementary lesions be present at the same time, but they are there in all stages of their development. Only erythema multiforme and dermatitis herpetiformis in their most variegated aspect can be compared as regards polymorphism with the eruptive stage of syphilis. The lesions in the latter case, however, have this character distinguishing them sharply from both those conditions—namely, the absence of itching. The *colour* of secondary lesions is remarkable, but not being peculiar to them, can hardly be taken as a trustworthy guide to their nature. The prevailing tone of these lesions is a tint resembling the lean of raw ham, passing into a coppery colour, and leaving a permanent brown pigmentation. The coppery colour of a lesion may be suggestive, but taken by itself it is of comparatively little clinical importance, and a diagnosis of syphilis should never be based on that alone. As regards *position*, the first rash, as already

said, comes out on the abdomen, next on the chest, then on the front of the arms and the back of the legs, next on the palms and soles, the back and sides of the neck, and sometimes on the face. The scaly lesions which simulate psoriasis affect the flexor rather than the extensor surfaces of the limbs, and are seldom seen on the tips of the elbows and knees, the typical situations of true psoriasis. The epigastric and hypochondriac regions, the nape of the neck, and the forehead near the margin of the hair, are situations much affected by syphilitic lesions.

The earliest local manifestations of constitutional syphilis on mucous membranes are, as has been said, small ulcers on the tonsils. These have usually more or less the outline of a horseshoe, with a yellowish floor and greyish-white borders. They generally pass away quickly. At a later period mucous patches and mucous tubercles may form on the cheeks, tongue, gums, lips, pharynx, larynx, about the anus and vulva, and under the prepuce; these patches may prove obstinate.

One of the most important symptoms of constitutional syphilis is the general enlargement of glands. Those most severely affected are the posterior cervical, the inguinal, and the epitrochlear. They are small, separate, free from tenderness, and do not tend to suppurate.

Besides the lesions of the skin and mucous membrane which have been described, all the other tissues of the body—especially the eye, the bones and their periosteum, the joints, and the nervous system—are liable to become involved. Iritis is of common occurrence from four to seven months after infection; and there may be symmetrical retinitis. The ear may be the seat of otitis media and interna. Periostitis and synovitis, giving rise to tenderness of the bones and joint pains, are common. Localised anæsthesia, due to peripheral neuritis, is said to occur (Fournier). All

these symptoms are apt to be symmetrical. Permanent blindness or deafness may, however, result from the inflammation of the retina and internal ear.

In most cases secondary lesions disappear under treatment, and in about six months the patient may seem to be entirely free from the disease. He may, however, remain liable from time to time to "reminders" in the form of lesions intermediate in type between the secondary and the tertiary forms, and partaking to some extent of the characters of both. Among these "intermediate" lesions are sores on the sides of the tongue, and white patches with thickening on its dorsum (the so-called *psoriasis linguæ* or *leucoplakia*<sup>1</sup>), red scaly areas with sinuous outlines on the scrotum, and patches of induration, covered with layers of thickened and desquamating epithelium on the palms of the hands (the so-called *palmar psoriasis*). The character which chiefly differentiates these from tertiary lesions is that they tend to be symmetrical.

The exact duration of the secondary stage, that is to say, of the general infectivity of the disease, is unknown. Almost all examples of accidental contagion during the secondary period occur within a comparatively short time of its commencement. The cutaneous and other phenomena, as a rule, cease by the end of the first year, but sometimes the later secondary eruptions may continue until the tertiary local lesions make their appearance. This usually occurs in the third year, but it may take place as late as twenty years or even longer after infection. It must be understood that there is no sharp line of demarcation between the secondary and tertiary stages; on the contrary, these occasionally overlap. I have frequently seen in

<sup>1</sup> Leucoplakia is not necessarily syphilitic. Cases are on record in which the subjects of this affection have acquired syphilis. Nor is it always confined to the mouth.

badly nourished patients lesions of tertiary type develop before those of the secondary stage had disappeared.

The course of syphilis as a whole is progressive, with periods of latency of variable length. There are certain circumstances, such as age, sex, personal habits and surroundings, the state of the general health, and treatment, which may have a modifying influence on its course and manifestations. As regards age, syphilis is usually mildest in young adults. Females, as a rule, suffer more than males, as the primary sore in them often escapes observation, and treatment is therefore not begun till the disease has become firmly established in the system. The influence of the personal surroundings and habits of the patient is seen in the fact that the disease is generally worst in those who are insufficiently fed and clothed, and who are of uncleanly or dissipated habits. As regards the state of health, scrofula, gout, and rheumatism all seriously aggravate the disease, and the presence of renal mischief is a grave complication. When the disease has ceased to give open proof of its presence, it may be aroused into activity by anything that injuriously affects the health. Treatment has unquestionably the most powerful influence on the course of syphilis. Hutchinson says—and I quite agree with him—that if the time between the development of the primary sore and the period at which secondary manifestations are wont to show themselves is fully taken advantage of, the secondary stage will be modified in its course.

**Tertiary lesions.**—In the tertiary stage syphilis is again a local disease, and the lesions therefore show no tendency to symmetrical arrangement. All tissues may be attacked, the process consisting of slow inflammatory infiltration. The infiltration is at first diffuse, but becomes intensified at certain points, resulting in the formation of nodules (gummata). A gumma

is a new growth which begins as a localised infiltration of the connective tissue with small round cells around the blood-vessels. A nodule is thus made in which new vessels appear, and which grows in size by infiltration of the surrounding parts, forming a new growth composed of granulation tissue. After attaining a certain size the tumour undergoes fatty degeneration, after which it softens and often breaks down into an ulcer when on the surface, which heals when the mass has separated. The effects of the process vary according to the nature of the tissue in which it takes place. When the infiltration is situated near the surface of the integument, the breaking down of gummata gives rise to ulcers with a hard raised edge and an indurated base. A characteristic feature of tertiary ulcers is their tendency to become serpiginous. They have sinuous outlines, and show little or no tendency to spontaneous cure. Sometimes, however, they heal and leave dense scars, or they may cicatrise at one part while continuing to spread at another. They are usually few in number. On the skin the more common position of tertiary lesions is on the forehead at the margin of the scalp (constituting a later form of *corona veneris* than the papular eruption already described), the upper parts of the legs, the skin of the genitals in both sexes, the nape of the neck, and the back; frequently also the palm or the sole, on one side (Plate xxxvi., A). Tertiary lesions of the skin are not unfrequently lupoid in type, and they may simulate lupus very closely (Plate xxxvi., B). The chief point of distinction is that their progress is more rapid than that of lupus vulgaris, and that they occur later in life. On the mucous membranes tertiary lesions have the characters of chronic inflammation with ulceration, followed by the formation of tough cicatricial tissue and thickening. This may lead to great narrowing of natural





A.—SYPHILIS OF SOLE OF FOOT: CUTANEOUS GUMMATA WITH HYPERKERATOSIS (22 YEARS AFTER INFECTION).



B.—NODULAR LATE SYPHILIS (DR. WHITFIELD'S CASE).





passages (pharynx, rectum, vulva). Gummata may also form in any of the internal organs; the tongue, the muscles, the bones, and the periosteum, the brain and spinal cord and their coverings, the nerves, the testicle, and other viscera are all liable to attack. Sclerosis of the spinal cord, and of the small blood-vessels and arteries, leading to the formation of aneurysms or amyloid disease, is of occasional occurrence. When the skin is close to the periosteum it is often affected secondarily to the latter. Tertiary lesions nearly always leave enduring marks of their presence in atrophic scars, with thickening.

**Hereditary syphilis.**—The signs of hereditary syphilis do not usually show themselves until three weeks or a month after birth. The child is almost invariably free from any lesion of the skin or other parts when born, but a few cases of undoubtedly congenital syphilis have been reported by those who have had opportunities of seeing large numbers of children immediately after birth in lying-in hospitals. In some cases a form of bullous pemphigoid eruption occurs within a day or two after birth, and may cause death within a week. This attacks any part of the skin, but has a special proclivity for palms and soles. The first symptom, however, is usually a form of chronic coryza (snuffles), sometimes accompanied by laryngitis, causing hoarseness of the cry. This is followed by a skin eruption, which may be papular, scaly, pustular, or bullous. Condylomata about the buttocks and anus are common. Onychia may occur. In a case described by Heller,<sup>1</sup> that of a child who died at the age of four weeks, several of the nails both of the hands and of the feet were severely affected. In some of the nails the nail-plate had been replaced by a soft mass formed in part of hæmorrhagic crust. Like the secondary eruptions in

<sup>1</sup> *Arch. f. Derm. u. Syph.*, May, 1903, p. 235.

the adult, the general eruption is symmetrical in distribution and transient in duration. Polymorphism is also a frequent characteristic of infantile syphilis, and the colour approximates to the tint of the lean of raw ham, as is seen in the adult. In fat babies the lesions frequently have the character of intertrigo, and the irritation from the urine and fæces gives rise to sores about the nates, and especially about the anus. Peeling patches of erythema on the face and neck are common. Sores are also apt to form about the corners of the mouth. The skin is loose, dry, and of a *café au lait* tint. The face often presents a peculiarly senile, wrinkled aspect; this, however, is not constant. The eruption is accompanied by wasting, anæmia, debility, and fretfulness. The spleen and sometimes the liver are enlarged, and the testicles may be hard and swollen. Iritis or choroido-retinitis may occur. A little later bossing of the skull around the anterior fontanelle (Parrot's nodes), or thinning of the skull (craniotabes) may be seen. Alopecia or excessive growth of hair is not uncommon. Epiphysitis, causing pseudo-paralysis and chronic periostitis, especially of the tibiæ, may be early symptoms. These symptoms are generally at their height in the second, third, and fourth months after birth. The affection often ends in death, but if the child survive, the symptoms will, as a rule, have disappeared by the end of the first year of life.

After the first year there comes a period of latency, which may last a variable time. Up to the age of eighteen or twenty inflammatory affections of the eye and ear are frequent, the permanent teeth, as pointed out by Hutchinson, show characteristic changes, particularly affecting the upper central incisors, which are small, widely separated, screw-driver shaped, and notched at their free extremities. The nose is often depressed and saddle-shaped. Gummata may occur in the skin or

bones, chronic periostitis, synovitis and arthritis are not rare, and meningeal and cortical inflammation may lead to mental and paralytic affections. The skin, however, is not usually the seat of any special lesions. There are no scaly or papular eruptions, and only in the rarest cases any ulcerative processes with the serpiginous character which has been described as distinctive of tertiary syphilis in the adult. Of the late cutaneous manifestations of inherited syphilis in adult age comparatively little is known. I have seen a case in which there was ulceration of the pharynx, accompanied by an eruption on the face somewhat resembling lupus.

Inherited syphilis as such cannot be transmitted. The stage of the acquired disease in the parent makes no difference in the disease that is transmitted, but different children may inherit it in varying degrees of severity. It is only in extremely rare cases that a parent in the tertiary stage transmits the disease—indeed, in my opinion, it is doubtful if this ever happens.

The **diagnosis** of syphilis is usually sufficiently easy. The induration of the primary lesion, together with the enlargement and hardening of the nearest lymphatic glands, is in most cases sufficiently characteristic to enable the practitioner to give a positive opinion. It must be remembered, however, that hardness is not a constant feature of infecting sores, especially when seated on the lips or on other parts where the tissue is loose ; nor, on the other hand, can a chancre be at once pronounced to be non-infecting because of the absence of induration. The primary sore is most likely to be overlooked in women, and a very careful examination should therefore be made whenever possible. Primary sores in unusual situations, as on the face, may sometimes present difficulties ; the practitioner should never allow himself to be misled by preconceived ideas as to the improbability of contagion, but should judge each

case solely on the evidence before him. The discrimination between a primary sore on the face and malignant disease can often be made by the age of the patient and by the chronicity of the process. In some instances, however, a sure diagnosis can be arrived at only after a certain length of time. In syphilis, more than in any other disease, the truth can be determined only by taking a comprehensive view of all the circumstances of the case—the history of the lesions, their characters, course, and termination, and the effect of treatment upon them. The mimicry of syphilis may occasionally perplex the observer. The general distinctive characters of secondary lesions that have been set forth—symmetry, coppery colour, position, polymorphism, and absence of itching, together with enlarged glands, sore throat, or tongue—will in most cases suffice to identify the disease, even in the absence of a definite history or mark of a primary sore. It must, however, be repeated that it is not the presence of any one of these characters, nor even the combination of two or three of them, that can be relied upon; only the sum of them can be taken as affording solid ground for the diagnosis of syphilis. When there is any doubt, the whole cutaneous surface should be examined, and in this way a characteristic lesion or mark will usually be discovered which will give the clue that is wanted.

Apart from the general characteristics that have been mentioned, there are certain features whereby the elementary lesions themselves may be distinguished from similar ones not syphilitic in origin. Thus, in the case of macular syphilides, a cool atmosphere will bring them out in vivid colours, even when almost completely faded. From the erythematous drug rashes they are differentiated by the absence of itching or burning; tinea versicolor and ringworm of the body, both of which are occasionally simulated more or less closely by

macular syphilides, can be identified by their respective parasites. Seborrhœa corporis is often very difficult to distinguish from a macular syphilide; indeed, the two affections are often associated. The wider distribution of the syphilide and the other evidences of the disease will settle the diagnosis. Squamous syphilides may sometimes be the seat of such an amount of scale formation as to be mistaken for ordinary psoriasis. Again, a papular rash in circles may simulate an annular psoriasis. In either case the syphilitic nature of the lesion can usually be determined by the polymorphism of the eruption and the distribution of the disease, the elbows and knees, which are the favourite situations of psoriasis, being as a rule avoided by the syphilitic eruption. Moreover, while psoriasis prefers the extensor aspects, the papular syphilide has a partiality for the flexor surfaces of the limbs; there is also a difference in the appearance of the scales, those of the syphilitic lesion being thin and dirty white, while those of psoriasis have a characteristic silvery sheen, and are heaped up in layers. The history is of importance in both cases. The subject of true psoriasis will, as a rule, have had several previous attacks, and the disease can often be traced back to early life. In syphilis, on the other hand, a particular lesion is seldom repeated. The peculiar papular eruption of the palms and soles which occurs symmetrically as a secondary, and unilaterally as a tertiary, lesion, and which is sometimes inappropriately called "syphilitic psoriasis," may sometimes be confused with the dry chronic eczema that is met with in the same situation. The small papular syphilide may occasionally be difficult to distinguish from a widely diffused lichen ruber planus; in the latter, however, the rash is uniform, the papules are generally arranged in lines, and itching is usually severe. Eczematous lesions can generally be distinguished from those due to

syphilis by the catarrhal character of the process, by their itching, and, by the absence of other signs of syphilis.

Pustular syphilides occasionally resemble varicella. Acne varioliformis is sometimes simulated by syphilis. Here the diagnosis must be based chiefly on the absence of other signs of constitutional disease. Subcutaneous gummata may be mistaken for abscess, and on this supposition may be opened, when they give issue not to pus, but to a gummy liquid. The breaking down of a gumma on the leg may give rise to an ulcer resembling the ordinary callous ulcer; the true nature of the sore will be revealed by its proving refractory to ordinary treatment and giving way to antisyphilitic remedies. From lupus syphilitic lesions can usually be distinguished by the absence of the characteristic apple-jelly nodules, by the comparative rapidity of the process, and by the age of the patient, lupus usually commencing in early life. Rodent ulcer and epithelioma may sometimes have to be distinguished from tertiary lesions. As a rule, in the cancerous ulcer a process of new growth has preceded the ulceration, and the characteristic hard edge and red, shining dry floor of the malignant ulcer will generally serve to identify it. The position of rodent ulcer on the upper part of the cheek, near the eyelid, or the side of the nose, or the temple, is another distinguishing feature. Lastly, the age of the patient counts for something, rodent ulcer, or epithelioma of the face, occurring as a rule only in people past middle life.

The diagnosis of inherited syphilis in early infancy is at times easy, but at other times a matter of great difficulty. Snuffles, the wizened old-mannish aspect, the coppery eruptions, and the sores about the mouth and anus, make up a sum of clinical phenomena that is characteristic. In some cases the history of the parents helps to elucidate the difficulty. In the adult



who has been the subject of infantile syphilis the signs of the disease are seen in "the square forehead with prominent frontal eminences like budding horns, the sunken nose, the soft, pale, earthy-tinted skin, and the scars about the angles of the mouth,"<sup>1</sup> and in the pegged and notched upper incisor and canine teeth. Besides these, signs of interstitial keratitis and choroiditis are often present, and deafness may have been left as a legacy from previous otitis.

The *serum diagnosis* of syphilis is based on the phenomenon known as "deviation of the complement" described by Bordet and Gengou in 1901. When the blood cells of one animal are introduced into another animal of a different species, the serum of the latter acquires the power of destroying these corpuscles. This hæmolytic property depends on an immune substance or amboceptor which resists a temperature of 55° C., and another substance or "complement" destroyed at this temperature. Heating the serum of the immunised animal to 55° C. for half an hour destroys its hæmolytic power on account of the destruction of the complement; but this can be restored by adding the serum of a normal animal which contains the natural complement, but which itself has no hæmolytic power, since it contains no immune substance. Bordet and Gengou found that when an antigen, or body capable of giving rise to the formation of antibodies, and the corresponding antibody are added to the immune substance, the complement which is added afterwards is no longer capable of combining with the immune body, and therefore no hæmolysis occurs. This is known as "deviation of the complement." For the actual test Wassermann used: (1) red corpuscles of the sheep, washed and suspended in normal saline solution; (2) heated (inactivated) rabbit's

<sup>1</sup> Hutchinson, "Syphilis," p. 84.

serum, immunised against sheep's corpuscles ; (3) fresh guinea-pig's serum (complement) ; (4) an extract of virulent syphilitic material, such as congenital syphilitic liver, as the antigen ; (5) a known antisyphilitic substance, such as the inactivated serum of immunised monkeys. If syphilitic antigen and antibody (4) and (5) are mixed with fresh guinea-pig's serum (3) and incubated at body temperature for three-quarters of an hour, and the corpuscles and hæmolytic serum (1) and (2) be added, and the mixture incubated for another two hours, no hæmolysis is found to occur, the complement having been used up by the interaction between the syphilitic antigen and antibody.<sup>1</sup> Lesser holds that a positive Wassermann's reaction is a certain proof of syphilis, but that a negative reaction does not exclude it. Observations made on 300 syphilitic patients by Citron and Blaschko gave the following results : During the primary stage the reaction was positive in 90 per cent. ; during the secondary stage, marked by obvious symptoms, it was positive in 98 per cent. ; during the same stage without characteristic symptoms, it was positive in 80 per cent. ; during the tertiary stage with obvious symptoms it was positive in 91 per cent. ; and during the same stage without characteristic symptoms it was positive in 57 per cent.<sup>2</sup>

The **prognosis** of syphilis depends on the age and general health of the patient, on the severity of the disease, and especially on the treatment. As already said, young adults will, under proper conditions, recover as a rule within a year of contagion. In persons of unhealthy constitution or of alcohol habit, or living in insanitary surroundings, the prospect is much less favourable. Syphilis contracted in middle life is very

<sup>1</sup> See Dr. Andrewes' description in D'Arcy Power and J. Keogh Murphy's "System of Syphilis," Chap. xv., p. 167.

<sup>2</sup> *Lancet*, Mar. 28, 1908, p. 971.

intractable, some authorities going so far as to say that if inoculated after the age of forty it is incurable. The mildness of the earlier symptoms affords no guarantee against the appearance of tertiary lesions of great and even fatal severity. The most important element in the prognosis, however, is the treatment.

**Treatment.**—In the treatment of syphilis there is great divergence of practice. Assuming that mercury, the time-honoured specific, is the drug to be exhibited, the first question to be decided is whether it is desirable to administer it as soon as the diagnosis of the chancre is established, or to wait until constitutional symptoms have appeared. Continental and American authorities are in favour of waiting until the secondary signs appear, while in this country it is held by some that mercury should be given at once.

The next question that arises is as to the method of administration. There are six principal ways in which mercury may be given: (1) By the mouth, (2) by intramuscular injection, (3) by subcutaneous injection, (4) by intravenous injection, (5) by inunction, and (6) by baths.

1. The *oral* method is that which many English and American authorities favour, on the grounds that it is clean and convenient and inexpensive, that it can be carried out by the patient himself, and that the therapeutic results are as satisfactory as those yielded by any of the other methods. The disadvantages urged by those who prefer other methods are that there is risk of alimentary disturbance, that in certain patients there appears to be no absorption, and that in any case absorption is slow and irregular, and the therapeutic effect tardy.

2. *Intramuscular injection*, which is extensively practised in the British Army, is advocated on the grounds that the dosage is definite and the absorption certain,

that there is rapid therapeutic action, that the method is clean, and that secrecy is easily maintained. It is specially recommended where the central nervous system is affected, where a rapid therapeutic effect is desired, or where, as in hot climates, there is more than ordinary liability to gastro-intestinal disturbance from the oral administration of the drug. The great objections brought against it are (1) the risk of abscess, and (2) the pain, which, though it varies with the patient, is admittedly in some cases considerable. The favourite sites of injection are the buttocks, the lumbar and scapular regions, and on each side of the vertebral column 4 cm. outside the spinous processes. Either (*a*) soluble or (*b*) insoluble salts may be used. Of the former the main drawbacks are the necessity for daily administration and the frequent recurrence of pain; of the latter, that in the rare cases in which mercurial poisoning takes place, it is impossible to get rid of the mercury. Soluble salts are injected daily, the course consisting of 20 to 30 injections; insoluble salts at intervals of seven to fourteen days, from 5 to 10 injections forming a course. Among soluble salts used for injection are perchloride of mercury, biniodide of mercury, neutral mercuric salicylate, and sozoiolate of mercury. Of insoluble salts, grey oil is considered to be the best for ordinary cases, while calomel is held to be at once the most effective and the most painful. Salicylate, which gives the least pain, appears to be suitable only for cases in which mild treatment is sufficient.

A preparation of mercury for intramuscular injection was introduced by Möller under the name of *mercuriol*, which can, he claims, be injected with a minimum of local irritation. Oil of mercuriol is recommended by Laborie<sup>1</sup> where energetic treatment or a rapid result is required,

<sup>1</sup> *Journ. des Mal. Cut. et Syph.*, Jan., 1904.

where inunction is unsuitable, and large doses of perchloride are not well borne. He gives weekly injections of four to five divisions of a Lüer syringe (1 division =  $\frac{1}{20}$  c.c.) of a mixture of oil of mercuriol (containing 90 per cent. of mercury) with two parts by volume of dehydrated oil of almonds.

3. *Subcutaneous injection* is less practised than intramuscular, for the pain is always greater, and the injections are more likely to leave behind them nodules and cause abscess.

4. For *intravenous injection* it is urged that the dosage admits of accurate regulation, that absorption is certain and the therapeutic action rapid, and that the process is almost painless, nor is there painful induration. The disadvantages are said to be that intravenous injection may cause thrombosis, and that it is not possible where the superficial veins are very small. Moreover, if the vein is missed there is a good deal of swelling and acute pain.

5. The chief advantages claimed for *inunction* are that the drug is introduced in well-regulated doses, that the process is painless, and that it is followed by no digestive derangement. The disadvantages alleged against it are that in some cases the mercury is not absorbed, that the process is a dirty one, involving the provision of special underclothing, and that it is expensive, requiring a staff of trained rubbers, and an adequate supply of hot baths.

6. *Baths* may be either calomel vapour or mercuric chloride. The calomel vapour bath is recommended for its speedy therapeutic effect, especially in cases in which there are obstinate ulcers and hard papular syphilides; mercuric baths for cases marked by widespread and ulcerating skin lesions, and for cachetic patients who can ill bear treatment by the oral or other methods.

In cases in which mercury is administered otherwise than by the mouth, there is choice between the intermittent and the continuous methods. On the Continent the intermittent method is usually preferred, courses being given three times a year in the first two years, twice in the third year, and according to circumstances in the fourth year.<sup>1</sup>

Having passed in rapid review the chief methods of treating syphilis by mercury, I proceed to describe my own preferences, the result of long experience of this subject. It is impossible, however, to lay down any rule which shall be equally applicable to all cases. The judicious practitioner will be more anxious to adapt the treatment to the requirements of the individual case than rigidly to conform to any fixed line of treatment. Treatment should vary with the stage at which the case comes under treatment, with the severity and locality of the attack, with the general health and habits of the patient, and with the degree of importance which is attached to the maintenance of secrecy. If the disease should have reached a comparatively advanced stage before it comes under treatment, or the attack should be marked by unwonted severity, or a structure such as the iris or the choroid should be imminently threatened, it is important to get mercury into the system with the least possible delay, and intramuscular injections should at once be made. In cases where gastric symptoms are present, and there is no imperative need for the maintenance of secrecy, the inunction method may be adopted. In ordinary uncomplicated cases, in which

<sup>1</sup> For fuller details of the treatment of syphilis by the various methods enumerated in the text, see Captain Pollock's Report to the Sub-committee appointed by the Advisory Board for Army Medical Services to enquire into the Treatment of Venereal Diseases and Scabies in the Army, published in 1904.



there is no urgency and no occasion for more drastic methods, the drug may be administered orally.

If the primary sore is in a suitable position it should at once be excised. If, however, it has existed some time and the neighbouring glands are enlarged, mechanical removal is useless. The sore should then be treated antiseptically, and the administration of mercury should be begun. I am not in favour, in most cases, of waiting until the generally accepted signs of secondary syphilis appear, but to this rule again there are exceptions. The form in which I usually administer mercury *by the mouth* is not grey powder, but *blue pill* (gr. 1 to 3 t. d.). *Grey powder* is often used, but in my opinion is more uncertain in its action. *Plummer's pill* is an especially useful form of administering mercury over long periods, as there is little risk of its producing salivation. I usually give  $2\frac{1}{2}$  grains *night and morning*. Or *perchloride of mercury* may be given (gr.  $\frac{1}{32}$  to  $\frac{1}{16}$ ).

*Inunction*, to which resort may be had, as I have already said, in cases in which the drug disagrees if given by the mouth, is carried out by rubbing blue ointment vigorously into the patient's skin. It must be rubbed into different places from day to day, otherwise a mercurial eruption is almost sure to be produced. The ointment must not be washed off for some hours; the usual plan is for the patient to wrap himself in flannel and go to bed, taking a warm bath when he gets up on the following morning. The inunction system is very thoroughly carried out by trained rubbers under medical supervision at Aix-la-Chapelle, Wiesbaden, and other places, and the usual course lasts a month. The method can, however, be carried out with artificial baths at special institutions in this country, or at the patient's own home, though without the advantage belonging to a watering-place



“cure,” namely, the regimen and general discipline to which patients at such places have to submit.

For *intramuscular injections*, which are suitable in severe and urgent cases, the insoluble salts are to be preferred, in spite of the serious situation in which the patient might be placed should symptoms of mercurial poisoning appear. They may be administered, for choice, in the form of grey oil, injected into the buttock once a week.

The *vapour bath* method is especially useful in rupia and ulcerating forms of the disease. *Calomel* (from one scruple to half a drachm), mixed with water, is vaporised over a small lamp, and the patient sits (from a quarter to half an hour) on a chair over the lamp, enveloped in a cloak. Fumigation has the same advantages as inunction, but both have the drawback of requiring the expenditure of much time and trouble.

The administration of mercury should not at first be pushed to the full physiological limit; it is generally sufficient to produce slight tenderness of the gums. Salivation should always be avoided if possible; when it occurs the lesions, indeed, are very rapidly cured, but the suspension of the drug which it necessitates is likely to be followed by troublesome consequences later.

During a course of mercury the patient should be particularly careful to keep his teeth perfectly clean, in order to minimise the risk of stomatitis; for the same reason it will be prudent for him to refrain from smoking. Septic teeth should be removed or stopped. He must also be careful when he goes out to guard himself against cold, and he must be particular in his diet, so as to avoid disturbance of the bowels. Tonics, such as iron, quinine, etc., are to a certain extent antagonistic to mercury; indeed, the drug has a better chance of producing its fullest beneficial effect when the patient is kept a little below his ordinary standard of health.

Under the influence of mercury administered steadily in small doses—that is, short of purgation and ptyalism—the primary lesion will speedily be cured and the last trace of induration will disappear in about a month. If the administration of the drug be begun before the disease has entered on the constitutional stage, it will often happen that no secondary lesions develop. Nevertheless, the mercurial medication may be continued for six or even nine months; its suspension within that period is apt to be followed by the speedy appearance of secondary manifestations. If such do show themselves they are comparatively trivial. In cases in which secondary lesions have developed it will be wise to persevere with the mercury for at least one year after the disappearance of the eruption. The prolonged exhibition of mercury also makes the subsequent development of tertiary lesions less likely, though it cannot be considered an absolute safeguard. As a general rule of practice it may be laid down that in ordinary cases the administration of mercury should be continued, with intermissions of varying length, for two—sometimes three and in certain cases even for four—years. The patient may then be considered tolerably safe from further manifestations of the disease. There is no fear of disordering the health by giving mercury in small doses for several months; on the contrary, patients so treated, as a rule, visibly improve in their general condition.

Mercury may also be used locally with great advantage in the treatment of the more severe secondary syphilides. It may be applied to the skin in the form of an ointment containing gr. xv to xx of the *ammoniochloride* to the ounce of lard, or *oleate of mercury* 1 to 2 per cent. The application of calomel to mucous tubercles soon causes their disappearance. In the mouth and throat mercury may be used as a gargle in the form

of  $\frac{1}{2}$  to 1 gr. of *perchloride of mercury* in  $\mathfrak{Z}$ vij of *distilled water*.

In congenital syphilis the best method of administering mercury is the inunction of mercurial ointment combined with tonic treatment. If the skin eruption is very copious *grey powder*, gr. j or less *thrice daily*, should be substituted for the inunction, watch being kept lest the treatment cause diarrhoea. The child should remain under observation at least two years.

In the treatment of tertiary lesions *iodide of potassium* is the most important drug. As in this stage syphilis is a purely local disease, the drug is not given as an antidote to any poison that may be supposed to be still lingering in the system, but because of the peculiar property possessed by iodine of causing the absorption of inflammatory products and hypertrophied tissue. It is well to begin with small doses and gradually increase them as required.

Iodide of potassium frequently has a very depressing effect on the patient, and the *iodide of sodium* may often advantageously be substituted for it, or the iodides of sodium, potassium, and ammonium may be combined. The addition of *ammonia* greatly increases the efficacy of the iodides. The tendency of the iodides to cause skin lesions of a peculiar character must not be forgotten, and the practitioner must be careful not to push the drug under the mistaken notion that such lesions are syphilitic. When tissue change is slow the iodide may be combined with *perchloride of mercury* as follows :—

R	Liq. hydrarg. perchloridi	..	..	$\mathfrak{Z}$ j
	Potass. iodid.	..	..	gr. v
	Decoct. sarsæ co.	..	..	ad $\mathfrak{Z}$ j

Sometimes, after a prolonged administration of the iodides they seem to lose their effect. In such circum-

stances it is well to suspend the drug for a time and give mercury in place of it, returning again at a later period to the iodide, if necessary. The effect of this alteration of treatment is often very marked.

Tertiary lesions can often be cured by local treatment alone. For this purpose there is nothing so rapid or so sure in its effects as *iodoform*, which may be applied either as a powder (dusted on or blown over the affected surface with an insufflator) or in the form of an ointment (3j to 3j of *vaseline* or *lard*). On account of the disagreeable smell of iodoform, *iodol* or *dermatol* may be substituted for it. Ulcerating patches can frequently be dealt with efficiently by the free application of acid nitrate of mercury, care being taken thoroughly to destroy the lesion. Chromic acid applications should be applied to ulcers on the mucous membrane of the mouth and tongue.

Various serums have been tried in the treatment of syphilis; but although some favourable results have been reported, this method has not succeeded in winning a recognised place in the practitioner's armamentarium.

Recently mercury as a specific for syphilis has found a rival in *arsenic*, the merits of which were advocated by Neisser at the Sheffield meeting of the British Medical Association in 1908.<sup>1</sup> It is administered extensively in France and Germany in the form of *atoxyl*, a relatively non-poisonous preparation which has been much employed in sleeping sickness and in other affections. Hallopeau declares it to be a "most efficacious remedy" for syphilis, and reports that its effects are most striking in cases marked by roseola, papular syphilides, and tertiary ulcerations. Exostoses were reduced and pains rapidly abated. In a patient with syphilis maligna, six injections of 12 grains sufficed to heal ulcerations of the size of a shilling;

<sup>1</sup> *Brit. Med. Jour.*, Oct. 10, 1908.

Although secondary ulcerous syphilides were more refractory, papular ulcerous syphilides on the vulva, usually found to be extremely obdurate, yielded to the treatment. Lassar at first, in a long series of cases, obtained only negative results, but after further trial reported that even small doses ( $7\frac{1}{2}$  gr. in 10 per cent. sterilised solution three times weekly) sufficed to produce a prompt amelioration of the symptoms, both in recent and in long-standing cases. The malady, he reports, gives the same response in all its stages, and he claims that, administered in large doses, atoxyl may be regarded as another specific remedy. Other Continental authorities have borne similar testimony to the efficacy of the preparation.

From the experiments of Metchnikoff, Neisser, and others, prophylactic virtue is claimed for atoxyl in the case of the lower animals. Of seven apes inoculated by Metchnikoff with the same syphilitic virus, five developed syphilis, while two which were injected with atoxyl during the incubation period remained free from symptoms. It is suggested that there might be a similar prophylactic action in man.

That the administration of atoxyl is sometimes followed by symptoms of intolerance—malaise, nausea, vomiting, gastro-intestinal disturbance, painful micturition and disagreeable sensations in the limbs, and in some cases optic nerve atrophy causing blindness—is admitted, but as such effects were not produced when the preparation was first employed they are held to be the result of errors in manufacture. More recently another form of the same arylarsonate salts, known as *soamin*, which contains 22·8 per cent of arsenic, has been used, and Major Ward, R.A.M.C.,<sup>1</sup> and Colonel Lambkin, R.A.M.C.,<sup>2</sup>

<sup>1</sup> *Journ. of the Royal Army Medical Corps*, April, 1908.

<sup>2</sup> *Brit. Med. Jour.*, Aug. 15, 1908.

report an entire absence of toxic symptoms and marked therapeutic efficacy. It is given by intramuscular or subcutaneous injection, and must not be used simultaneously with mercury, nor until fifteen days after mercurial treatment has ceased. Lambkin does not claim that the arylarsonates kill the germ, as mercury is believed to do, but suggests that they exercise their therapeutic effect by stimulating phagocytic action.

For the present, arsenic, brilliant as have been the results reported by the eminent men who have used it, cannot be regarded as having entirely passed out of the experimental stage. It may possibly supplant mercury, or, like iodide of potassium, may be resorted to only in cases in which that drug is ill borne. In the meantime mercury holds the field, and the general principles of the treatment of syphilis may therefore be summed up as follows:—If the patient comes under observation as soon as the primary lesion has appeared, remove it with the knife, if it is in a situation suitable for excision; in either event, save in exceptional cases, begin the internal administration of mercury as soon as the diagnosis is certain. Continue this intermittently for a year, or, if secondary symptoms manifest themselves, for two, three, or even four years. If the patient cannot bear the mercury when given by the mouth, try one of the other methods described. If tertiary lesions develop, give iodide of potassium, sodium, or ammonium, or all three, discontinuing the administration if any sign of iodism shows itself. Use antiseptics locally. If at any stage of the disease the general health shows signs of failing, use general tonic treatment, especially cod-liver oil, quinine, and iron, good food, and sea air, as in open-air treatment for other chronic infective diseases.



## CHAPTER XXI

### GENERAL INOCULABLE DISEASES (*concluded*)

#### LEPROSY—YAWS—GLANDERS

**Leprosy** (Plate xxxvii.) is an infective disease endemic in certain parts of the world, manifesting itself primarily by lesions of the skin or of the peripheral nerves, and secondarily attacking most of the other tissues and organs of the body, undermining the constitution, running a slow course, and leading directly or indirectly to death. All cases of leprosy have certain features in common, and the disease presents a definite succession of stages. The *incubation* stage usually extends over two or three years, sometimes much longer. Danielssen and Boeck record a case in which it lasted ten years, and I have seen one in which the evidence pointed to an incubation period of eight years. A *prodromal period* usually follows, analogous to the febrile stage of syphilis. The patient complains of languor and drowsiness, muscular and mental weakness, headache and giddiness, dyspepsia, dryness of the nose, and epistaxis. General sweating is often a prominent symptom, and sometimes local anidrosis may be observed. Constipation or diarrhoea may be present, but according to Leloir this is exceptional. Next comes the period of *invasion*, usually marked by a rigor and great rise of temperature, as high as 103° F. or 104° F.

After a variable period the characteristic leprosy spots appear on the face, limbs, or trunk, the most common positions being the face, especially the fore-



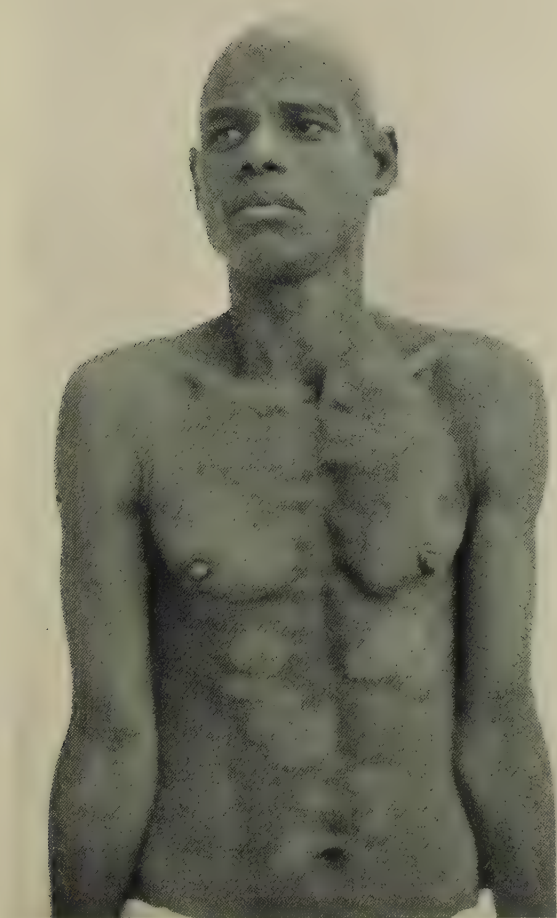


PLATE XXXVII.—LEPROSY.

*(By permission, from the Photographic Album of the School of  
Medicine, Cairo.)*



head, the nose, the cheeks, and the ears ; the extensor surfaces of the limbs and the buttocks are also not unfrequently the seat of the eruption. The maculæ consist of erythematous patches in which not only hyperæmia but a certain amount of infiltration is usually present, and of areas in which the pigment is either increased or diminished. As in small-pox, the fever and other symptoms of invasion subside on the appearance of the eruption. The maculæ vary according to the natural colour of the skin. In white races they are usually of a light red colour ; in Norway they are generally lenticular crimson patches (Danielssen and Boeck). The colour is brighter at the edge than in the centre, which may become white and atrophic. The size of the spots varies from that of a pin's head to the palm of the hand or larger. They are smooth and shining, with a well-defined outline. On the face they may simulate sunblain, or, by their slightly raised margin and the confluence of two or three of them, they may present the appearance of erythema gyratum. Fresh crops of maculæ continue to come out at irregular intervals for a considerable time, each outburst being accompanied by some exacerbation of the febrile phenomena. The spots are not at first the seat of altered sensation. They may, however, be hyperæsthetic ; but later, as a rule, they become more or less anæsthetic, according to the amount of pressure of the leprous infiltration on the peripheral nerves. The anæsthesia is, however, often not limited to the macules, areas of apparently normal skin being found to have lost their sensibility. It is often by an accidental discovery of this kind that the patient is made aware that he is the subject of leprosy. The mucous membranes are, as a rule, not appreciably affected at this stage (Leloir).

So far the cutaneous manifestations are common to all cases of leprosy, with the usual variations of intensity

in different individuals. As a general rule, the prodromata are more conspicuous and severe in the case of a developing skin leprosy than in the nervous form of the affection. In the latter there may be little or no fever, but rather a persistent feeling of chilliness, and the other symptoms of constitutional disorder may be almost entirely absent.

In its subsequent course leprosy may follow one of two different lines of evolution, according as the disease directs the weight of its attack against the skin or the peripheral nervous system. In a certain proportion of cases both forms may be combined, and thus three distinct types of leprosy are met with—namely, (1) skin, tubercular, or nodular leprosy; (2) nerve, or anæsthetic, leprosy; (3) mixed or complete leprosy. The least common of these varieties is the last. Of the two others the anæsthetic form is most frequent in tropical countries, and the nodular in Europe. Though pathologically the same disease, they present such marked clinical differences that they require to be described separately.

**Skin leprosy.**—After a period of invasion varying from a few weeks to some months, the maculæ undergo transformation into nodules by sudden increase of inflammatory infiltration; they also develop independently in the skin and under it. The evolution of the nodules is usually very slow, but in rare cases it may be comparatively rapid, being ushered in by an erythematous blush, simulating erysipelas and accompanied by febrile phenomena. Their size, when fully developed, varies from that of a small shot to that of a filbert or larger. They are round or oval in outline, raised considerably above the level of the skin, and sometimes surrounded by a considerable zone of diffuse infiltration. Sometimes they have the normal tint of the skin, but the colour varies greatly according to the degree of inflammatory reaction. When this is slight they may simulate lupus

nodules; at other times their brownish red tint makes them resemble syphilitic papules. When the skin around is congested they may simulate erythema



Fig. 10.—Nodular Leprosy.

(From a replica of Model No. 1,311 in the Hôpital St. Louis, Paris.)

nodosum or rosacea; when suppuration occurs they may resemble sycosis. As in other chronic inflammations of the skin, telangiectasis may be observed on the surface of the nodules. The local temperature is sometimes above the normal. The nodules are elastic to the touch, conveying to the finger an indiarubber-like

sensation, resembling that noticed in early gummata. At first they are sometimes hyperæsthetic, later they generally become the seat of temporary or permanent anæsthesia. In some cases sensation is not altered. Extensive areas of skin are frequently involved in the process of inflammatory infiltration, and firm flat plates, as of hard œdema, with either a smooth or a nodular surface, can be felt.



Fig. 11.—Pinna of the Ear of a person suffering from Nodular Leprosy.

(From the same case as Fig. 10.)

This most frequently occurs on the limbs, but is sometimes seen on the face. The colour of these plates is at first red or purple, and afterwards deepens into brown or even black. They are met with chiefly in the most chronic cases. The affected skin, especially in the nodular stage, is often the seat of seborrhœa. This gives the nodules, especially on the face, a characteristic burnished appearance. In negroes the whole skin, even where there are no apparent lesions, is usually greasy, and has a soapy feeling to the touch (Hillis). The hairs in the affected areas fall out. In their distribution the nodules present certain peculiarities distinguishing them more particularly from syphilitic lesions. In the vast majority of cases the face and the ears are the first points attacked. The massing of the nodules on the brow (Fig. 10), and the consequent deepening of the natural furrows at the root of the nose, give the countenance the characteristic lion-like aspect which was the origin of one of the ancient names for



leprosy, *leontiasis*. The enlargement of the ears also gives a peculiar and characteristic aspect (Fig. 11).

The nodules sometimes develop in the first instance on the limbs or the buttocks. They may for a time be confined to the regions in which they first make their appearance, but, as the disease progresses, fresh crops of them come out on the arms, the trunk, and the abdomen. On the upper limbs the usual positions where the nodules are found are the back of the elbows, the postero-external aspect of the forearms, the wrists, and the postero-lateral aspects of the fingers. The terminal phalanges are the last to be affected. On the lower limbs the corresponding regions are the usual seats of nodules. The nails, especially those of the toes, are often involved, and become deformed. On the chest and belly the nodules are usually small; at the top of the thigh, in Scarpa's triangle, they are larger and more numerous. They are extremely rare on the hairy scalp. Desquamation of the cuticle covering the nodules is of common occurrence; it may be excessive, giving rise to an appearance somewhat resembling ichthyosis.

The mucous membranes also are frequently the seat of nodules, the parts usually attacked being the conjunctiva and the mucous lining of the nose, mouth, pharynx, and larynx. In these situations the nodules have a red or grey colour, and may resemble syphilitic lesions. When the tongue is greatly infiltrated the nodules are separated by depressions which may simulate syphilitic fissures. The affected parts are usually anæsthetic in the later stages, though the sense of taste is long retained. The breath has a peculiar sickening fœtor. In the nasal fossæ destructive ulceration of the septum often leads to flattening of the nose, resembling that seen in syphilis. In the eye the leprous inflammation often extends from the cornea to the iris, causing great pain and slow destruction of the globe. The



thickening of the laryngeal mucous membrane gives rise to hoarseness, and as the infiltration proceeds and the vocal cords become more and more immobilised, the voice is reduced to a whisper. The gradual narrowing of the glottis that results leads to increasing difficulty in breathing, and the sudden occurrence of œdema of the larynx not unfrequently makes tracheotomy necessary.

This stage of leprosy is usually very slowly progressive. The nodules increase in size, and while fresh crops appear from time to time, some of the older nodules undergo softening.

Sooner or later the process enters on a new phase by the supervention of ulceration. Both on the skin and on the mucous membranes nodules have a natural tendency to break down, though in rare instances they may, like the lesions in tubercle and syphilis, undergo cicatricial shrinking without previous ulceration. In a few cases the disintegration is brought about by a suppurative process. The nodules become transformed into pustules which open and discharge their contents, leaving steep-bordered ulcers. These as a rule soon heal, leaving scars.

Often the nodules and plates become red, itchy, or painful, soften and break down, leaving an ulcer with a hard, prominent, sinuous edge and a grey base, which secretes a purulent, sometimes sanious discharge. These ulcers, like those of the corresponding period of syphilis, will usually cicatrise under treatment, but they often leave hideous deformities. When neglected a more acute inflammatory process may supervene and cause rapid extension of the ulcer, especially on the fingers and toes, and implication of tendons, bones, and joints, which often leads to gangrene. These processes may be complicated by the enlargement and suppuration of lymphatic glands, especially those in the inguinal and cervical regions.

The liver, spleen, and mesenteric glands may be enlarged. If the patient survive and the ulcers heal, the peripheral nerves may become affected and the phenomena of nerve leprosy supervene.

**Nerve leprosy.**—As already said, the prodromal symptoms of both varieties of leprosy are essentially the same. There are, however, certain minor differences by which the experienced practitioner can sometimes foretell along which line the evolution of the disease will probably proceed. While the constitutional disturbance and the eruptive phenomena are, as a rule, more marked when the disease is about to make the skin the particular object of its attack, the advent of the anæsthetic form is often foreshadowed by neuraglic pains and cutaneous hyperæsthesia. The patient will experience the sensation of “pins and needles” when slight pressure is made over the track of superficial nerves. Neuralgic pain in the great toe has sometimes been mistaken for gout. Rheumatoid pains, backache, and lumbago are of frequent occurrence. Pigmentary changes in the skin following the maculæ of the invasion period are much more common in anæsthetic than in nodular leprosy. These changes are of two kinds: in some the affected area is paler than the natural skin—sometimes even absolutely white; in others, again, it is deeply pigmented, the staining being brown in light-skinned races, and often of ebony blackness in dark races. The pigmented patches are usually symmetrical, occurring chiefly on the face, limbs, and trunk. They are rare on mucous membranes, and unknown on the scalp. Towards the end of the eruptive period, if not before, the pigment often disappears from the macules, and scarring frequently occurs. On these depigmented areas anæsthesia often develops. Anidrosis, which may or may not have been preceded by hyperidrosis, occurs on the affected areas and around them; the secretion

of sebum is arrested, the hairs become blanched and fall out. The falling out of the eyebrows is in some places looked upon by the laity as the first sign of leprosy.

A point of difference between the macules of nodular leprosy and those of the anæsthetic form is that while the former, as already said, become converted into nodules by the formation of inflammatory new tissue, in nerve leprosy only pigmentary changes occur. These may be fugitive ; on the other hand, they are sometimes permanent. In some rare cases they may be altogether wanting. The eruptive stage is ushered in by intensification of neuralgic pains, with hyperæsthesia, often intense, of the macular areas and the skin around them, indicating a further development of the neuritic process which is the underlying pathological factor in this form of leprosy. The neuralgic pains increase in severity, and an eruption of bullous lesions takes place which are independent of the macules, though they may affect the same site (Leloir).

The bullous eruption, like pemphigus, is of extremely rapid development, and its appearance may be preceded by fever and general disturbance. The bullæ usually appear one by one. Their size varies from that of a millet-seed to that of a turkey's egg. They have absolutely the same characters as those of ordinary pemphigus. They increase rapidly, sometimes becoming doubled in size in a few days. They rupture and form a large crust, generally leaving a pale patch bordered by a brown ring, sometimes a brown patch, rarely a scar. On removing the crust a grey surface is exposed, consisting of altered rete, the epidermis being cast off by suppuration. Thus thick yellow scabs or crusts may be formed, sometimes resembling rupia. A succession of crusts may form and fall off, leaving at last a granulating surface, which in time gives place to a very white scar. Sometimes the bulla aborts and a parchment-

like scale forms and separates, leaving a hyperæsthetic ulcer. The bullous eruption chiefly affects the hands and feet, the backs of the elbows, and the fronts of the knees, but it may be found on any part of the body. It may continue for years, and after it has disappeared ulcers may remain. During the period occupied by the bullous eruption, nodular thickenings form on the peripheral nerve trunks, and in certain situations, as on the ulnar nerve at the elbow, they can easily be felt.

The eruption at this stage may remain more or less stationary for years, or it may spread all over the body, making the whole skin, or extensive areas of it, atrophied and white. On the face the skin has often a peculiar tense appearance, as though drawn too tightly over the features, giving the countenance a fixed, expressionless look. Meanwhile, the peripheral neuritis becomes more and more general, and as different nerves are involved, a great variety of paralytic and tropho-neurotic symptoms is induced. Among these are—(1) *Hyperæsthesia*. This may persist for years. It generally begins on the limbs, sometimes on the face, and the trunk is not unfrequently affected. Walking, and even the raising of food to the mouth, may be impossible. (2) *Neuralgic pains*. These are paroxysmal, often coming on at night. They are frequently of extreme intensity. Thickenings can frequently be felt on the affected nerves. (3) *Alterations in the sweat secretion*. This is a frequent phenomenon. The secretion may be suppressed on the limbs, while at the same time there may be excessive sweating on the trunk. At a later stage, as the neuritis progresses, (4) *anæsthesia* usually takes the place of hyperæsthesia. It begins on the limbs, and very rarely attacks the trunk. On the face it has the same distribution as the previous neuralgia. The loss of sensation is at first confined to the skin, but in time it extends to the subcutaneous tissue and

becomes absolute. The mucous membranes of the mouth, eye, and nose may also become utterly insensitive. As a result of paralysis, (5) *muscular atrophy* is observed, especially in the hands. The thenar and hypothenar eminences are the first to waste, then the interossei; wrist-drop occurs, and the second and third phalanges are bent inwards, giving the fingers the aspect of claws (Fig. 12). The feet are often similarly affected, so that progressive muscular atrophy is simulated. Sometimes the muscular atrophy is masked by hard œdema.

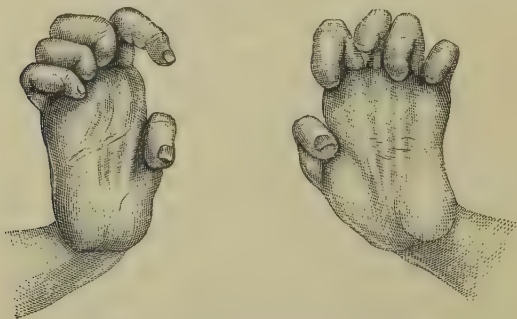


Fig. 12.—Claw-like Hands in Nerve Leprosy.

(From a photograph of a patient under Author's care.)

Among other changes due to the advancing neuritis, purulent conjunctivitis, thickening of the conjunctiva, ulcer of the cornea, and iritis may occur. The septum nasi may undergo absorption, with the result that the nose falls in. The gums may shrink and the teeth fall out. Mutilations are of frequent occurrence. The atrophied, shrivelled skin ulcerates, and as the ulcers deepen, joints are laid open and phalanges drop off. Such mutilations are confined to the hands and feet; the tarsus and carpus are rarely affected. Mutilation may also result from interstitial absorption of the phalangeal, metacarpal, or metatarsal bones, unaccom-

panied by ulceration. The stumps are often bullous. The nails may be greatly deformed, but they do not usually drop off for a long time. In some cases a blue soft spot appears on an anæsthetic area after a febrile attack. The skin breaks and the matter escapes, leaving an indolent ulcer which gradually excavates the tissues, laying bare muscles and bones. At this stage the patient may die of pyæmia. In other cases dry gangrene of the fingers and toes supervenes. The hands and feet may become the seat of perforating ulcers, exactly resembling those seen in cases of locomotor ataxy. Gastric "crises" similar to those occurring in that disease are also of not unfrequent occurrence in leprosy.

In the last stage of the disease the deformity is horrible. The intelligence is often lost, and death occurs from colliquative diarrhœa, marasmus, tetanic convulsions, intercurrent pneumonia, or pleurisy. In the nodular form of the disease phthisis and nephritis are frequent complications, and one or other of these diseases is in a considerable proportion of cases the direct cause of death.

**Mixed leprosy.**—In some cases of leprosy both nodular skin lesions and the changes due to leprous neuritis are present. In such circumstances the features of the two forms are combined. Anæsthetic leprosy may supervene on the nodular form, but it is more often the case that the latter shows itself some months after the commencement of the former. Some cases, however, are from the outset of the mixed or "complete" type, and in these the disease runs a more rapid course than in either of the other varieties.

The **etiology** of leprosy is still wrapped in a good deal of obscurity. The existence of a specific bacillus in the tissues affected with the disease was proved by Armauer Hansen in 1874, and the evidence that this



micro-organism is the exciting cause of leprosy is now accepted as conclusive ; very little, however, is definitely known as to the actual mode of infection, or as to the conditions necessary for the growth of the bacillus. Among the predisposing causes are prolonged exposure to cold and wet, insufficient and improper food, and generally anything that depresses the health. The wide geographical distribution of leprosy seems to negative the idea that climate is a factor in its causation. It is endemic in certain limited regions in Norway, and to a much less extent in Sweden, in Russia (especially on the shores of the Baltic), in Italy, France, Spain, Portugal, Greece, and Turkey. In Asia it is largely prevalent in China, India, Turkestan, and elsewhere. In Africa, which used to be looked upon as its birthplace, it is also widely diffused. In North America it is found in scattered spots ; in Central America it is relatively common ; and in some parts of South America, especially in Brazil, it may almost be said to be rife. In the West Indies it is not uncommon ; it occurs in parts of Australasia, and it rages with almost epidemic virulence in the Sandwich Islands, into which it was first imported within the memory of men not much past middle age. It ceased to be endemic in Great Britain towards the end of the sixteenth century, though what is believed to have been the last case of native origin occurred in the Shetland Isles as late as the beginning of the nineteenth century.

A climatic feature common to most of the favourite haunts of leprosy is the proximity of water, but the exceptions to this rule are sufficiently numerous to forbid its being made the basis of an induction. That some peculiarity of climate, or perhaps rather of soil, has a very decided influence on the development of leprosy is clearly shown by the fact that the children of lepers—who, from living under the same conditions



as their parents and in frequent and intimate contact with them, are particularly likely to be attacked—have an excellent chance of escape if they are removed from the infected district at an early age. Even when the disease has actually given signs of its presence, it sometimes seems to be arrested, or at least greatly modified, by transference of the patient to a place free from leprosy (Hutchinson).

The real problem in the causation of leprosy is to determine how the bacillus gains access to the body. From ancient times the food has been regarded as the vehicle of the poison, fish being looked upon with especial suspicion. There is, however, no trustworthy evidence of the disease ever having been conveyed by food of any kind; and, as regards fish in particular, there is abundant proof that persons may contract leprosy who have never had the opportunity of eating fish. From the analogy of kindred diseases like syphilis and tuberculosis, it is probable that the virus of leprosy is transmitted by inoculation, though the prolonged incubation period of the disease makes it very difficult to trace individual cases to definite contagion. Experimental inoculation in the human subject has so far given negative or ambiguous results, and in spite of persevering attempts by some of the most experienced bacteriologists of the day, it is doubtful whether the bacillus has yet been successfully cultivated. In a few cases, however, leprosy appears to have been communicated by vaccination.<sup>1</sup>

The bacillary origin of leprosy being admitted, it is impossible to escape from the conclusion that the disease is at least potentially contagious; and what is known

<sup>1</sup> Two cases in which this occurred have been reported by Daubler, *Monats. f. prakt. Derm.*, Bd. viii., p. 123. Others have been reported by Arning, *Arch. f. Derm. u. Syph.*, January, 1891.

as to its mode of spreading, both in ancient times and in our own day, affords strong presumptive evidence that contagion is the principal element in its diffusion. On any other theory it is impossible to explain the development and dissemination of leprosy in a perfectly virgin soil like that of the Sandwich Islands, following the importation of the disease from without. The decrease in the prevalence of the disease which has always followed strict isolation of lepers is a practical proof of its contagious nature. Few people, I imagine, will agree with Hutchinson that the extinction of leprosy throughout Europe in the sixteenth century was a result of the Reformation and the diminished consumption of fish which was one of the consequences of that movement. The stamping out of the disease is much more likely to have been the result of the terribly drastic methods of "segregation" adopted by our forefathers, combined with a general improvement in the mode of living.

Confirmatory evidence is afforded by the modern instance of Madagascar, where, since segregation of lepers has been abandoned, the disease, which previously was of very limited distribution, has rapidly increased. It is certain, however, that leprosy is not contagious in the sense in which syphilis is contagious, but only in a limited sense, like tubercle. The bacillus may be implanted by contact, but it can take root only when the soil is particularly favourable to its development. In what this favourable condition of the soil consists is not exactly known, but it is probable that the mode of life, hygienic surroundings, and constitutional state of the patient have a powerful influence in determining the degree of his susceptibility to the infection.

Heredity has probably only an indirect influence. As the children usually inherit not only their constitution, but their social condition and environment, from their parents, they may no doubt inherit therewith a

soil favourable to the growth of the bacillus. Many cases of supposed hereditary transmission of the disease are really examples of contagion, for which the intimacy of family life affords special opportunities. The age at which the disease usually appears—from eight to fifteen years—is against the notion of its being to any large extent hereditary.

The **pathology** of leprosy is that of inflammation beginning in the skin or in the peripheral nerves, in response to irritation by the specific micro-organism which is the actual cause of the disease. The leprous nodule is composed of granulation tissue together with special “lepra cells” and giant cells. The essential part of the leprous process is the infiltration of the tissues of the affected parts with this modified granulation tissue, and the slowness of the process as compared with lupus and syphilis is owing to the slight vascularity of the new growth. In the skin the change commences in the corium, and the gradually increasing pressure of the infiltration material on the vessels, glands, and follicles destroys the normal elements of the integument; these are replaced by the leprous neoplasm, which in turn becomes disintegrated, causing deep ulcers. In nerve leprosy the infiltration takes place around the trunks of the peripheral nerves and penetrates between their fibres, at first irritating them (thus causing hyperæsthesia), then compressing them (causing anæsthesia), and destroying their conductivity (thus giving rise to paralysis). The bacillus (Plate XXIII., Fig. 4) is a straight or very slightly curved rod-shaped organism, about  $\frac{1}{5000}$  of an inch in length. The bacilli occur in clumps within the lepra cells in the lesions of the skin, mucous membranes, and other affected tissues; the blood-vessels going to the part are sometimes seen thickly packed with them. The same bacillus is found in the diseased tissues taken from lepers in every part

of the world, but in rare cases no bacilli can be discovered in the skin lesions (Saukrane). The reason of the failure of experimental inoculations may possibly be that passage through an intermediate host is necessary to make the bacillus capable of growing in the animal body. According as the bacilli invade the different internal organs various complications may be induced. There are many points of resemblance between tuberculosis and leprosy; nothing is yet definitely known, however, as to the connection between them beyond the fact that the affected tissues react to tuberculin, and a considerable proportion of lepers die of phthisis.

In a well marked case of leprosy, whether of the nodular or the anæsthetic form, the **diagnosis** presents no difficulty. In the prodromal stage the symptoms may sometimes suggest rheumatism or malaria, but the appearance of the leprous spots or of anæsthetic patches will soon reveal the nature of the disease. In the macular period there may occasionally be some possibility of confusion with erythema or syphilitic roseola. In the former, however, there is no disorder of sensation, and little or no constitutional disturbance, and the lesions are transitory; while the latter can often be excluded by the absence of history of a primary sore and of other characteristic signs of the disease. In the nodular and ulcerative stages the lesions of leprosy sometimes bear a more or less close resemblance to those of syphilis and lupus, but the presence of anæsthesia will generally serve to identify the disease. It should be remembered, however, that leprosy and syphilis sometimes co-exist. In the early stage of nodular leprosy the nodules are occasionally exactly like those of erythema nodosum, and the resemblance may be all the closer from the presence of pains about the joints. The rapid disappearance of the lumps in the former condition will speedily remove all doubt;

but if the patient has lived in a leprous district for any time it will be well to reserve judgment for a while as to the nature of the affection.

The **prognosis** of leprosy as regards cure is of the gloomiest. In some very exceptional cases, however, permanent recovery has been known to take place. The prospect is more favourable in the pure anæsthetic than in the nodular form of the disease. The average duration of life in the former is about twenty, and in the latter about ten years. Nodular leprosy sometimes runs a very acute course, however, proving fatal in a year; and, on the other hand, in nerve leprosy life may be prolonged for thirty or forty years. Early treatment, and especially removal from an infected district, may do something to improve the patient's condition and increase his chances of recovery.

The **treatment** of leprosy must be directed to the alleviation of symptoms and to the improvement of the sufferer's general health. There is no antidote for the disease. Tuberculin, which at first seemed to offer a hope that a curative agent had been discovered, only quickens the activity of the process. The serum treatment, which has had a considerable trial, has not up to the present given satisfactory results. *Charulmoogra oil* (from the *Gynocardia odorata*) given internally in doses of three minims or more thrice daily after meals, and rubbed for two or three hours a day in the form of an ointment composed of equal parts of the oil and lard, occasionally does good. Or it may be injected subcutaneously, a method recommended by Tourtoulin, Hallopeau, Du Castel, and others, who report that it yields good results. *Arsenic* is sometimes of marked use, especially in the skin variety. *Gurjun oil* (from *Dipterocarpus turbinatus*) given internally in an emulsion consisting of one part of the oil to three of lime-water (℥ss), and applied locally (in the same way as the

Chaulmoogra ointment) in a liniment of equal parts of the oil and lime-water, has been well spoken of by those who have tried it in the tropics, but now appears to be little used. Dr. Neish, medical officer of the Leper Asylum for Jamaica, reports that all cases are improved by the subcutaneous injection of soluble salts of mercury, the anæsthetic type with more certainty than the tubercular.<sup>1</sup> In a case of nerve leprosy Sir Patrick Manson tried thyroïdin with apparent success, the patient being free from symptoms at the time of writing.<sup>2</sup> Sulphur baths are useful, especially in the tropics, where scabies is a frequent complication of leprosy. The ulcers and other lesions must be treated on general surgical principles, the most scrupulous cleanliness and the strictest antisepsis being cardinal principles in the local treatment, for the sake not only of the patient, but of those who have to minister to him. In a case of anæsthetic leprosy under the care of the author and Dr. Dore, the infiltration disappeared after applications of the X-rays, the nodules became almost imperceptible, the anæsthesia markedly less, and the elephantiasis distinctly improved. There is other evidence to show that the local manifestations of leprosy are amenable to radiotherapy. Nerve-stretching and evacuation of the leprous infiltration lying within the nerve sheath are not unfrequently followed by good results to the peripheral portions of the limb supplied by the nerves. When the throat is the seat of disease the practitioner must always be prepared to perform tracheotomy. The constitutional symptoms may also be treated on general principles, *quinine* being given in full doses when fever is present, and diarrhœa and other complications being dealt with by the usual remedies. *Cod-liver oil* and a

<sup>1</sup> "Leprosy in Jamaica," by E. Graham Little, *Brit. Journ. Derm.*, Dec., 1904, p. 447.

<sup>2</sup> "Tropical Diseases," 4th edition (1907).



liberal supply of nourishing food, with stimulants according to indications, are most important adjuncts to medical and surgical treatment. The patient should, if possible, be removed at the earliest moment from any place in which the disease is endemic.

Strict isolation is the only trustworthy means of checking the spread of leprosy, as is shown by the experience of Norway. Segregation, if properly carried out, is not only a protection to the community at large, but is greatly to the advantage of the lepers themselves, who thus receive better treatment than they could otherwise, in the majority of cases, command.

**Yaws**<sup>1</sup>—also known as frambœsia (from the French *framboise*, a raspberry), the *paranghi* of Ceylon, the *coco* of Fiji, the *puru* of the Malay Peninsula, Amboyna button, etc.—is a disease caused by the inoculation of a specific virus, characterised by eruptive and ulcerative lesions of the skin, with involvement of the other tissues in the later stages, and generally by greater or less constitutional disturbance. It is endemic on the West Coast of Africa, in the West Indies, in some parts of North and South America, in Madagascar, Ceylon, and other tropical countries.

Four distinct stages are recognised in the evolution of the disease. The *incubation period* is estimated as lasting from three to ten weeks. The *primary period* corresponds with the life-history of the inoculation sore. This consists of a papule, which may appear on the lip, the breast, the groin, the genitals, or the perineum. In about a week this papule becomes yellow at the apex, and seven days later discharges and dries up into a scab. On removing this scab a

<sup>1</sup>The account of yaws here given is mainly founded on the excellent description in Rat's monograph ("Yaws," London, 1891).



small ulcer with raised edge and a floor covered with granulations is discovered. The ulcer heals in a fortnight, but may persist for two months; it leaves an insignificant scar.

The *secondary* stage begins, about a month after the appearance of the inoculation sore, with febrile phenomena, intermittent in type, and of greater or less intensity; sometimes with graver symptoms of constitutional disorder, such as albuminuria, hæmaturia, or epistaxis. After a variable time from the onset of the fever an eruption of tiny red spots, like those of "prickly heat," appears, the fever generally subsiding as the rash becomes developed. The eruption, which is preceded by itching, appears in the form of small papules on the face and neck, and spreads downwards, the whole body being covered usually by the end of the third day. In a week the papules become yellow on the top, and begin to increase in size, so that by the end of the third week they measure a quarter of an inch in width and an eighth of an inch in height. Meanwhile the yellow heads have become transformed into scabs, beneath which is a heap of granulations grouped together so as to present the appearance of a raspberry. This is the characteristic lesion of yaws. The granulations secrete a small amount of pus, and the lesions give off a musty odour. After a time the granulations lose their florid aspect and become pale or even white. Sometimes the papules are arranged in rings, especially round the eyes, nose, mouth, and genitals. They are sometimes seen inside the mouth and the vagina, also in the nasal fossæ and the external auditory meatus. The ulcerated papules are only slightly sensitive, but itching, as a rule, is very pronounced. In most cases healing takes place beneath the scabs, which separate about the end of the second month from the appearance of the rash. Pale spots are left, which in negroes

become darker and in whites lighter than the surrounding skin. The spots are generally permanent, and are most conspicuous about the mouth, chin, and lower jaw.

The lesions are always accompanied by a greater or less amount of anæmia; in weakly persons, and in cases where treatment is neglected, healing may be greatly protracted. The papules may remain stationary for many months, or they may extend and by coalescence form large, deep ulcers, which leave considerable deformities or cause death from septicæmia, pyæmia, or exhaustion. In the palms and soles the ulcers usually assume the form of fissures. In children the disease runs an acute course; in the adult the process is more chronic. The description of the eruptive stage which has been given applies to the majority of cases, but variations in the appearance, and especially in the amount, of the eruption, are not infrequent. Thus, instead of definite papules, only slightly scaly patches may be visible. Sometimes the eruption is limited to the extensor aspect of the forearm and leg.

In unfavourable cases a *tertiary period*, characterised by lesions no longer limited to the skin, but involving the deep tissues, may supervene. The most characteristic tertiary lesion is a nodular infiltration of the subcutaneous tissue, generally leading to the formation of superficial ulcers, which spread serpigiously. New nodules frequently appear in the neighbourhood of the older ones, and masses resembling syphilitic gummata may form and break down into ulcers. The favourite position of these late ulcers is the leg below the knee, especially round the ankle. They are also common about the lips, and may be met with in any part of the body. Deep fissures are often present on the hands and feet; the pain on walking caused by

them in the latter situation gives rise to a characteristic gait. Among the other lesions of the tertiary period are destructive ulcerations of the pharynx, soft palate, and septum; nodes on the clavicle, sternum, ulna, tibia, and the metacarpal and metatarsal bones, which may give rise to permanent thickening, or break down and cause ulcers; chronic dactylitis; chronic arthritis, resembling white swelling; and myositis, leading to contractures. If the late affection is severe grave anæmia may be produced, and may terminate in cachexia and death.

The essential element in the **etiology** of yaws is a specific poison, which is conveyed into the system by inoculation, chiefly by direct contact, as by kissing, sexual intercourse, etc.; sometimes apparently indirectly by insect bites or by flies, which convey the virus from a yaws lesion to an ordinary ulcer. An abrasion of the tegumentary surface appears to be a necessary condition of the implantation of the poison. From the analogy of other inoculable diseases it is probable that the cause of the affection is a specific micro-organism. In 1905 Castellani demonstrated in scrapings of yaws tissues the presence of a very delicate spirochæte, *Spirochæta pertenuis* or *S. pallidula*, similar to that of syphilis. Castellani's discovery has been confirmed by several observers, amongst them Prowazek,<sup>1</sup> who recognised some morphological differences between the two species. According to him, in the spirillum of yaws the curves are less steep and more irregular than those of the organism of syphilis; the former spirillum has flattened curves, which distinguish it from the latter.<sup>2</sup>

As a result of their experimental researches on the inoculation of yaws into monkeys, Neisser, Baermann,

<sup>1</sup> *Arbeiten a. d. k. Gesundheitsamte*, 1907, vol. xxvi., p. 28.

<sup>2</sup> "System of Syphilis," p. 100.

and Halbenstädter<sup>1</sup> concluded that framboesia can be transferred from man to the higher and lower apes, and from ape to ape. They were also successful in inoculating with framboesia animals infected with syphilis, from which they infer that framboesia and syphilis are distinct affections. Ashburn and Craig also successfully inoculated five monkeys, and recovered the *Spirochaeta pertenuis* from all the lesions.<sup>2</sup>

An attack usually confers immunity, but in some cases two or more attacks have occurred in the same individual. The lesions are not auto-inoculable. Among the predisposing causes of yaws are—(1) a tropical climate—it is commonest in damp, hilly, isolated regions; (2) tender age—it is most frequent in children under ten, and is hardly ever contracted after thirty-five; (3) mode of life—it is commonest in the poor and in those living amidst insanitary surroundings; (4) race—it is most common in Africans; no race, however, is exempt. It is never congenital, and is probably hereditary only in the sense in which leprosy is so—that is, from the inheritance of conditions that favour its production, and from the opportunities of contagion presented by family life.

The **pathology** of yaws is that of dermatitis limited to the papillary layer, gradually penetrating into the corium, and involving the appendages of the skin. Many observers do not agree with Numa Rat as to the occurrence of a primary sore. The facts that monkeys can be inoculated with the disease and that Castellani has found a spirochæte in association with it point to the existence of a point of inoculation, if not to the

<sup>1</sup> "Experimental Researches on Framboesia Tropica in Apes," A. Neisser, Baermann, and Ludwig Halbenstädter, *Münch. med. Woch.*, July 10, 1906, p. 1337.

<sup>2</sup> *Philippine Journ. of Science*, Oct., 1907, p. 441.

presence of an actual sore. The serpiginous ulcerations and gummatous tertiary lesions of Rat are regarded by most recent authorities as independent tubercular or syphilitic infections.

It has been contended by some authorities that yaws is a form of syphilis, modified by race and climate, but, though it presents many points of analogy with syphilis, I am inclined to agree with Rat and others, who have had extensive opportunities of studying the disease clinically,<sup>1</sup> that on the whole the balance of evidence is against its being syphilis.<sup>2</sup> This view is confirmed by the fact already mentioned that animals infected with syphilis can be inoculated with yaws.

**Diagnosis.**—MacLeod<sup>3</sup> gives the following differential histological diagnosis of yaws:—It is distinguished from actinomycosis and rhinoscleroma by the absence of their specific micro-organisms; from the lepromata by the absence of Hansen's bacillus; from mycosis fungoides by the absence of 'fragmentation' of the infiltrating cells, and of degenerative changes with the formation of products of degeneration in the collagen and elastin, and by the presence of the epidermal changes peculiar to yaws; from tuberculosis, apart from the tubercle bacillus, by the absence of the characteristic architecture with its giant-cells, daughter plasma-cells, more marked disintegration of the fibrous stroma, and complete disappearance of the blood-vessels; and from syphilis by a number of details which, considered collectively, strongly suggest that yaws and syphilis are different histological entities. They are: (a) Cellular infiltra-

<sup>1</sup> See particularly Beaven Rake, "Post-mortem Appearances in Cases of Yaws," *Brit. Journ. Derm.*, 1892, p. 376.

<sup>2</sup> For a discussion of the distinction between syphilis and yaws, see Daniels, *Brit. Journ. Derm.*, vol. xviii., p. 426; and Powell, *ibid.*, p. 457.

<sup>3</sup> "Handbook of the Pathology of the Skin," 1903, p. 200.

tion; plasma-cells not so definitely arranged in rows or clustered round the blood-vessels as in syphilis; no large multinuclear cells (chorioplques), or true giant-cells, or intracellular hyalin degeneration noted in yaws. (b) Fibrous stroma; rarefaction of the collagen more marked than in syphilis, but no organisation or colloid degeneration found, such as occurs in syphilitic gummata. (c) Blood-vessels: no distinct proliferative changes in the vessel-walls or endothelium, as frequently occurs in syphilis. (d) Epidermis: marked proliferation and down-growth of the epithelium, with great thickening of the horny layer (due to hyperkeratosis or parakeratosis), are characteristic features of yaws, while they are unusual in syphilis.

As regards **prognosis**, the disease as a rule tends to spontaneous recovery unless the conditions of life of the patient be of the most unfavourable nature. Death may occur from neglect, but by proper treatment the disease can always be cured, and in most cases its manifestations can be limited to the skin and mucous membranes.

The **treatment** must consist in improving the constitution and hygienic surroundings of the patient. The inoculation sore is best treated by simple antiseptic applications. The fever must be dealt with on ordinary principles by *quinine* or the *salicylates*. Rat lays great stress on diaphoresis, and he gives *ammonium carbonate* with the double object of inducing sweating and promoting the alkalinity of the secretions. In the eruptive stage sulphur baths and calomel fumigations are useful. These should be followed by tonics, especially *iron* and *cod-liver oil*. In the tertiary stage *mercury* and *iodide of potassium* are the most efficient remedies. Rat is of opinion that in yaws, as in syphilis, the real curative agent is mercury, the iodides helping by promoting the absorption of inflammatory products. Others, how-



ever, contend that mercury is useless. In any case it should never be given in the early stage, as it aggravates the disease. Ulcers should be treated locally with black wash, weak solutions of perchloride of mercury, or iodoform.

**Glanders** is a disease caused by a specific bacillus derived from the horse, which gives rise to lesions of the skin, mucous membranes, and lymphatic glands, and to general constitutional infection, usually ending in death. Glanders may run an acute or subacute or a chronic course, the former as a rule terminating fatally within six weeks, the latter persisting for months or even years, and sometimes ending in recovery. One of the earliest symptoms is a peculiar discharge from the nostrils, the mucous membrane of which is violently inflamed and ulcerated in the acuter cases; in the chronic form this discharge is often slight or altogether absent. It is not always easy to ascertain the site of inoculation. Generally, however, it is found that the poison has gained admission through a wound or abrasion on the face or the hands. The local inflammatory reaction around this point is usually severe, and ulceration results, the sore having a foul appearance, with irregular edges. The neighbouring lymphatic vessels and glands are generally enlarged and inflamed. The skin lesions appear within three weeks or a month of the date of inoculation as groups of red spots that soon develop into papules. These develop into vesicles or bullæ, which run together and form pustules that give rise to widespread ulceration covered with foul crusts or with black gangrenous shreds. Subcutaneous infiltrations form and break down into large ulcers. The enlargement of the lymphatic glands gives rise to nodules, not only in the neighbourhood of the site of inoculation, but elsewhere ("farcy buds"). These often suppurate and break down into ragged, sloughy ulcers. Nearly the



whole surface of the skin may be covered with lesions of these various types. The general symptoms of glanders vary according to the acuteness of the process. They begin in from three or four days to as many weeks of the date of inoculation, and in their general character

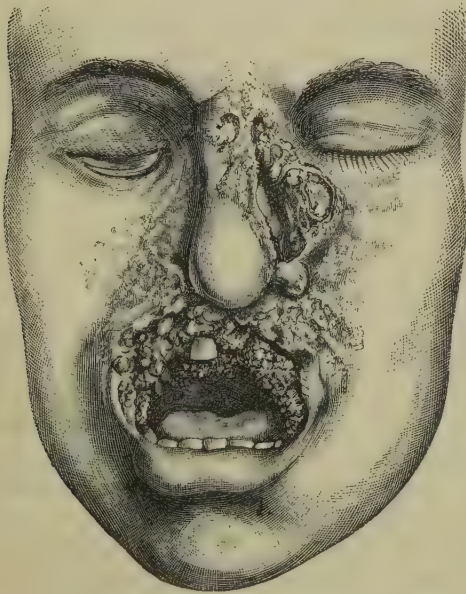


Fig. 13.—Chronic Glanders.

*(From the model of a case under the care of M. Besnier in the Hôpital St. Louis, Paris.)*

resemble rheumatic fever. In the acute and subacute cases the symptoms rapidly increase in intensity, and the patient sinks into a typhoid condition, in which he speedily passes away. Death also occurs from pyæmia in a certain proportion of cases. In chronic glanders severe and extensive ulceration may take place. (Fig. 13.

See also Besnier's description, "International Atlas of Rare Skin Diseases.")

The **etiology** of glanders has been elucidated by Loeffler, Charrin, and others, who have proved that it is due to a bacillus (*B. mallei*) somewhat resembling that of tubercle. The affection is almost always conveyed to the human subject from the horse in the discharge from the nostrils or from the ulcers. It is therefore found almost exclusively in persons whose occupation brings them much in contact with that animal. It has, however, been known to be communicated from man to man, and the lamented death of the distinguished Russian scientist Helman not many years ago from glanders contracted in the course of certain laboratory experiments may be taken as an example of its direct transmission by inoculation.

In a well-marked case the diagnosis can be made from the clinical phenomena alone. In doubtful cases the nature of the disease can be established by the reaction which takes place after the subcutaneous injection of mallein, a substance discovered by Helman, which it is sufficient to describe here as bearing the same relation to the virus of glanders that tuberculin does to that of tuberculosis.

In the acuter forms death invariably occurs within a few weeks; in the chronic variety recovery takes place in about 50 per cent.

The treatment of acute glanders is utterly unsatisfactory, no drug appearing to have any influence on the course of the disease. Chronic cases must be treated both constitutionally and locally on general principles. There appears to be reason to believe that in the injection of mallein a method of preventive inoculation has been discovered, but so far as I am aware no experiments in this direction have yet been made on the human subject.

## CHAPTER XXII

### DISEASES OF SKIN-GLANDS AND EPIDERMIC APPENDAGES (HAIR AND NAILS)

#### I.—DISEASES OF THE SKIN-GLANDS

THE sebaceous and sudoriparous glands may be disordered in their functions by excess, diminution, or alteration in the character of their natural secretion; and they may become inflamed, either primarily, or secondarily to the functional disorder, with the result that structural changes are often brought about in the integument and its appendages.

#### 1.—DISEASES OF THE SEBACEOUS GLANDS

**Seborrhœa** is a condition of over-activity of the sebaceous glands, leading to increase and alteration of their secretion. It occurs in two principal forms: (1) a dry form, in which the solid fatty constituents of the sebum are in excess, and the excreted material appears in the shape of dense, scaly masses, generally more or less greasy both to sight and touch (*seborrhœa sicca*); (2) an oily form, in which the fluid part of the secretion predominates, the discharge often being visible as oily drops at the mouth of the ducts, and making the skin look and feel as if it had been anointed with oil (*seborrhœa oleosa*). Both these forms are most common on the scalp. The condition most frequently observed is a slight greasy scurfiness, the thickness and colour of which vary greatly, according to the trouble that is taken to keep the parts clean. A peculiar salmon tint

which is frequently seen in seborrhœic lesions is probably, as suggested by Brooke, due to the superposition of the yellow colour of the greasy secretion and masses of cornified epithelium over the red of the subjacent hyperæmia. On the heads of infants seborrhœa may give rise to large dirty-yellowish greasy masses, generally thickest about the anterior fontanelle; the surface underneath these accumulations is usually pale, but sometimes it is inflamed. In adults such concretions are rare, but desquamation may be very abundant, the scales being sometimes distinctly greasy, sometimes dry and powdery. The condition is often accompanied by more or less itching, but not unfrequently the only sign that reveals its presence to the patient is the shower of scales (dandruff) which falls from his head when he brushes his hair or which accumulates on the collar of his coat during the day. Dry seborrhœa is generally accompanied by loss of hair, which loses its gloss from the want of its natural lubricant, and withers from want of nourishment. The eyebrows, moustache, and beard are sometimes, though much less frequently than the scalp, the seat of dry seborrhœa. According to Sabouraud, pityriasis, seborrhœa, and so-called seborrhœic eczema constitute a group of disorders which includes half the dermatoses of the scalp occurring between the ages of fifteen to twenty years of age in both sexes. Before puberty the heads of certain children are covered with dry, white scurf, which falls easily. This "pityriasis simplex" (seborrhœa sicca) is caused by a cryptogamic parasite—the spore of *Malassez* or bottle-bacillus of *Unna*, which lives in the superficial layers of the epidermis and causes it to desquamate. The scurf is, therefore, not dry seborrhœa, but epidermal scales. The second stage occurs about puberty. The scurf becomes more greasy, adherent, and yellowish-brown in colour (pityriasis steatoides). This change is due to a secondary infection

by the grey-cultured coccus, and is accompanied by slight falling of the hair. The third stage, or that of oily seborrhœa, is due to an infection of the fatty cylinder contained in the sebaceous duct by the microbacillus of seborrhœa. The bacillus leads to increased secretion of the gland, and excretes a toxin which causes loss of hair. The above course of events holds good for men only; in women, save in exceptional cases of a masculine type, the process usually remains at the second stage.

On the face the oily form is the more common. The discharge dries and gives rise to yellowish or reddish-brown cakes of greasy scales that often have a hyperæmic base and a fringe of papules about the edge. Reddish blotches frequently remain for a considerable time after the seborrhœic process has come to an end. The affection shows a marked preference for the middle third of the face, especially the alæ of the nose and the naso-labial furrow, and it is often limited to that region. In elderly persons the condition in this situation sometimes appears to be connected with the development of epithelioma (Jamieson). The corners of the mouth and the ears are also frequent seats of oily seborrhœa. The dry form is chiefly seen in parts away from the middle line. It is met with in the form of small scaly patches that are sometimes slightly hyperæmic.

Both forms of seborrhœa occur on the trunk and limbs. The lesions have the same general characters as those on the face. On the genitals and perineum, and in the genito-crural fold, seborrhœa of the oily variety is common, but the distinctive characters of the lesions are in these regions often lost in the secondary erythematous and eczematoid conditions that are apt to become developed there. On the labia the irritation of the rancid, greasy masses not unfrequently

gives rise to ulceration, which might possibly be mistaken for soft chancre.

Seborrhœa almost invariably begins on the scalp, and in the large majority of cases it is confined to that part. From the scalp it spreads downwards to the face, the body, and the limbs; and it may be taken as a rule, to which the exceptions are fewer in proportion to the care used in investigation, that when seborrhœic lesions are found on any part of the body, clear evidence of seborrhœa, present or past, will be found on the scalp (Unna).

Among predisposing causes of seborrhœa are all conditions that give rise to constitutional weakness, notably syphilis and acute fevers. Jacques<sup>1</sup> maintains that the starting-point of the affection is always some form of gastro-intestinal disturbance, constipation being that most frequently met with. His theory is that the chemical processes of digestion being disordered, toxins are produced which affect the sebaceous glands, either through the medium of the sympathetic or during their elimination through the skin. I agree with Brooke,<sup>2</sup> however, that the majority of persons who are the subjects of seborrhœa are in robust health. Indeed, the affection is so common that if constitutional weakness or derangement were a necessary condition of its production, the general standard of health in civilised countries must be assumed to be much lower than medical experience shows it to be.

That the severer forms of the disease are often associated with some disorder of the health proves nothing more than that, like other pathological pro-

<sup>1</sup> "De l'Etat séborréique de la Peau et de ses Rapports avec les Dermatoses," Paris, 1892.

<sup>2</sup> See his careful and suggestive paper, "The Relation of the Seborrhœic Processes to some other Affections of the Skin," *Brit. Journ. Derm.*, vol. i., 1888-89, p. 253.



cesses, it flourishes best in a congenial soil. The determining factor in the production of seborrhœa is probably the irritation set up by a parasitic agent. It must be admitted that the reasons that can be given for this belief are at present almost wholly of an *a priori* character, but they are nevertheless of considerable weight. It is difficult to explain the occurrence of the affection in persons of all ages, classes, and modes of life, and in the most diverse circumstances of health and skin texture, without postulating an external cause working independently of such conditions. That the amplest opportunities for invasion by micro-organisms exist has been shown by Taenzer, who isolated about eighty varieties of bacteria and fungi from the scales and secretion of eczema seborrhœicum.<sup>1</sup> The fact, established by clinical observation, that seborrhœa almost always spreads downwards from the head is probably to be accounted for by direct infection by the patient's fingers, and possibly also by falling scales. It is not unlikely that more than one micro-organism may take a part in the production of the affection, or further invasion may take place after the process has been started. This would help to explain the differences in the appearance and severity of the disease.

The **pathology** of seborrhœa is therefore "apparently a dermatitis caused by the presence of one or possibly several micro-organisms, and leading to a specific irritation of the fat-forming functions of the skin" (Brooke). Unna's view that the seat of the process is the sudoriparous and not the sebaceous apparatus has not found general acceptance among dermatologists, but it is not improbable that among the processes comprised under the name of seborrhœa there may be some in which the sweat glands are concerned as well as the sebaceous glands. Consistently with the opinion just

<sup>1</sup> *Monats. f. prakt. Derm.*, 1888, Bd. vii., No. 17, p. 818.



referred to, Unna regards all the conditions that have been described in the present chapter not as seborrhœa proper, but as seborrhœic eczema. That seborrhœa prepares the soil for other diseases, and notably for eczema, has already been stated, and it may be admitted that it is often difficult to draw the line accurately between the two conditions, so as to be able to say just where seborrhœa ends and seborrhœic eczema begins. But to call every case of scurfiness of the scalp eczema (which is essentially a catarrhal process) seems to me either a pathological misconception or an abuse of terms. In Sabouraud's view the characteristic element of seborrhœa is a fatty cylinder or cocoon in the sebaceous duct containing the seborrhœic microbacillus. The French investigator's results, however, still await confirmation by other workers.<sup>1</sup>

The **diagnosis** of typical seborrhœa of the oily variety can hardly ever present any difficulty. The characteristic greasiness of the lesions, the marked preference for the scalp, the frequent limitation of the eruption thereto, and its downward spread, make up a clinical picture that is readily recognised in most cases. The dry form is often by no means easy to distinguish from psoriasis. The character of the scales differs considerably in well-marked cases, those of psoriasis being bright and silvery, while those of seborrhœa are less glistening, softer and greasier. This alone, however, is not a safe guide. In such cases the starting-point of the eruption is the distinctive feature,

<sup>1</sup> See Sabouraud, "On the Pathology of Seborrhœa and Alopecia Areata," *Ann. de Derm. et de Syph.*, vol. vii., 1896, pp. 253, 460, 677, and 824, and vol. viii., p. 257; *Ann. de l'Institut Pasteur*, vol. xi., p. 134; reviews by Dr. Leslie Roberts (*Brit. Journ. Derm.*, vol. ix., p. 444, 1896); and Galloway (*Practitioner*, May, 1897); also a discussion on seborrhœa and baldness at the Soc. Française de Derm. et de Syph. (*Ann. de Derm. et de Syph.*, vol. viii., p. 611, June, 1897).

seborrhœa beginning, as already said, on the scalp, and tending to spread downwards, while psoriasis almost invariably commences on the elbows and knees, and spreads upwards. When this mark fails us a diagnosis may be almost impossible. It is important to bear in mind that the two affections may co-exist.

**Treatment.**—As seborrhœa is a local disease it can be cured by local measures, internal medication being necessary only when the general health is not satisfactory. The scaly masses must be removed by washing with soap and water, and the surface underneath soothed with emollient applications if inflamed. Parasitocides should next be applied, the strength being carefully adapted to the tolerance of the skin. Of these I trust most to *sulphur* in the ordinary run of cases. This may be applied as a lotion composed of  $\mathfrak{zss}$  to  $\mathfrak{zj}$  of *precipitated sulphur* in  $\mathfrak{zviij}$  of *distilled water*. This should be rubbed gently in (after being thoroughly shaken) with a small brush, care being taken to touch the hair as little as possible. The best time for the application is at bed-time, on account of the smell of the sulphur; in severe cases it should be made twice a day. When the mixture of the lotion and the products of secretion have formed a crust, this should be removed and the sulphur reapplied. The sulphur may also be applied in the form of a powder mixed with *oxide of zinc*, *powdered talc*, etc. Brocq speaks well of the following combination :—

Salicylic acid .. .. .	gr. xxx
Powdered hydrochlorate of pilocarpin ..	gr. xv
Powdered sulphur .. .. .	$\mathfrak{ziiij}$
Borate of soda .. .. .	gr. lxxv
Starch powder .. .. .	$\mathfrak{zijss}$ .
Powdered talc .. .. .	$\mathfrak{zij}$ — $\mathfrak{zjss}$

M.

The amount of sulphur may be increased to  $\mathfrak{zv}$ , that of borate of soda to  $\mathfrak{zijss}$ , the powder forming the

vehicle being proportionately increased; or the latter may be replaced by finely-powdered *calcined magnesia*, *oxide of zinc*, *subnitrate of bismuth*, and *talc*. After cleansing the head; if necessary, a layer of this powder is carefully applied to the scalp (*not* to the hair) every night. When the scalp is dry sulphur is best applied in the form of an ointment consisting of from 10 to 60 grains of precipitated sulphur to an ounce of lanolin, or a drachm of the sulphur to an ounce of pure vaseline with the addition of a little salicylic acid. Precipitated sulphur in cold cream in the proportion of 1 in 10 makes a good application. The following formula, proposed by Vidal, is useful:—

Precipitated sulphur .. .. .	3jss
Cacao butter .. .. .	3ijss
Castor oil .. .. .	3ivss
Balsam of Peru, or tincture of benzoin, to scent the ointment .. .. .	q.s.

From half a drachm to a drachm of *tincture of cantharides* may be added to promote the growth of the hair. If sulphur irritates the skin *resorcin* is an efficient substitute. It can be used in the form of an ointment: *Resorcini* gr. xv, *ung. paraffini* 3j. Mercurial applications may be used when sulphur is objected to, either in the form of a lotion containing 1 to 5 grains of *corrosive sublimate* in 3iij to 3vj of *alcohol* (90° C.), with *distilled water* or *rose-water* to make up to two pints; or of an ointment composed of *yellow precipitate* 7½ to 15 grains, *pure vaseline* or *lanolin* 3j; or *calomel* 15 grains, *tannin* 30 to 45 grains, *vaselin* or *lanolin* 3j. *Naphthol* β is often of great service. The scalp should first be thoroughly cleansed with *naphtholated oil* (1 per cent.) and *naphthol soap*, and afterwards washed for a week with an *alcoholic solution* of *naphthol* (1 to 2 per cent.). The same substance may be used in the form of an oint-

ment in the strength of 20 grains to the ounce. Jamieson uses an ointment composed of *tannic acid* ʒj, *pure glycerine* q.s., *vaseline* ʒj, *unguentum aq. rosæ* ʒj. The use of this should be combined with daily washing with *spiritus saponis alkalinus* and warm water, the washing becoming less frequent as the seborrhœa improves. When only one washing a week is required, the *spiritus saponis alkalinus* may with advantage be replaced by *infusion of quillaria bark* applied hot. The restoration of the hair may be promoted by the methods for the treatment of baldness which are described farther on.

**Seborrhœa corporis.**—Under this name Duhring and others have described what they consider to be a special form of seborrhœa. The eruption is most frequently seen on the front of the chest, over the sternum, and on the back between the shoulder-blades. The lesions appear first in the form of small red papules (hence the affection is sometimes called *seborrhœa papulosa*), which speedily coalesce into patches. These clear up in the centre while continuing to spread at the edge; circinate lesions are thus formed, the ring, however, being seldom complete. When one circle meets another, the parts touching each other, as usual, fade away, the remaining segments often forming wavy lines. The lesions are slightly raised, covered with greasy scales, and usually of a pinkish-salmon tint; if the scales are rubbed off an actively growing patch the underlying surface is seen to be bright red. The affection sometimes spreads extensively over the trunk by rapid advance of the edge of already existing lesions, and by the development of new foci among them. The only symptom is slight itching. The disease is almost invariably associated with seborrhœa of the scalp, and the lesions are sometimes actually continuous with those on the head. There can be little doubt that it is identical with seborrhœa of the scalp, though possibly,

as suggested by Brooke,<sup>1</sup> the more highly developed type of lesions may be the result of the action of some more deeply penetrating and aggressive micro-organism than is present in the ordinary forms of seborrhœa.

There has been a great deal of discussion as to the true nature of the affection, which has been variously regarded as a form of lichen (*L. circumscriptus*, *annulatus*, *gyratus*, etc.), and an eczema as well as a seborrhœa. Sabouraud regards the condition as a super-seborrhœic pityriasis, the pathology being the same as that of steatoid pityriasis of the scalp. Payne, while admitting that the starting-point of each so-called papule is a sebaceous gland, thinks there is something more than over-secretion. In his opinion, the bright red colour of the papules and margins of the patches indicates not only hyperæmia but dilatation and elongation of the capillary vessels. My own view is that the process is originally a seborrhœa, the hyperæmia being the response to irritation caused by the sweat and by the friction of the underclothing. As a matter of fact, the affection is chiefly seen in persons who perspire freely, and especially in those who wear thick, coarse underclothing; hence it has been termed "flannel rash." If neglected, it passes generally into eczema, and in many cases it is doubtless a seborrhœic eczema from the first.

The affection may sometimes be mistaken for tinea versicolor, but the absence of the fungus peculiar to the latter is decisive.

**Treatment** should be on the same general lines as that of seborrhœic eczema. The underclothing must be of unirritating texture, and should be frequently changed. A simple parasiticide application, after the parts have been thoroughly cleansed, may be relied upon to effect a cure.

<sup>1</sup> *Brit. Journ. Derm.*, vol. i., p. 254.

J. F. Payne,<sup>1</sup> though holding that no internal treatment is necessary, says two points have to be borne in mind: Gastric dyspepsia, though it cannot produce seborrhœa, may aggravate it when present, chiefly by causing cutaneous irritation and scratching; the same is true of constipation. Hence it is well to correct these conditions. Again, the general nutrition of the skin may be bad, and it may be advantageous to give a short course of arsenic.

**Milium** is a small white, pearly mass, generally of the size of a millet-seed (hence the name), situated just under the epidermis, chiefly in situations where the skin is thin and there is little or no subcutaneous fat. Milia are seen most frequently on the face, especially on the cheeks, temples, eyelids, and forehead; sometimes on the penis and scrotum, and on the inner surface of the labia minora. They vary in number, and are generally scattered about without any sign of grouping, except occasionally, when they may be seen massed about the inner canthus. In the early stage of their development they are sometimes translucent, and after growing to a certain size they may remain stationary. They are hard and freely movable in the skin. On the eyelids and scrotum, however, they generally run together, forming flat masses which are sometimes so hard as to deserve the name of "cutaneous calculi." Crocker<sup>2</sup> describes a special congenital form in which finely granular patches occur on the head and face, of a pale, reddish yellow, and slightly raised upon the surface. He suggests that it may be due to adherence of the amnion at an early stage of foetal life, or to a deep-seated intra-uterine inflammation.

Milia are not unfrequently seen in children at the

<sup>1</sup> Allbutt's "System of Medicine," vol. viii., p. 763.

<sup>2</sup> "Diseases of the Skin," 3rd edition, p. 1062.



breast, but most often in young adults. They sometimes follow acute forms of inflammation of the skin, as pemphigus and erysipelas; they occasionally form in the scars left by the lesions of syphilis and lupus.

Milia are generally considered to be plugs of sebaceous material, differing from comedones in being deeply seated in the acini of the glands and in having no opening towards the exterior. Robinson, however, suggests that there are two forms: one consisting of misplaced embryonic tissue from a hair follicle or from the rete, containing no fatty epithelium and having no opening; the other, a deep-seated comedo containing fatty epithelium and cholesterin. Milia are often associated with acne.

The little tumours can be turned out through a small incision. A little iodine or strong carbolic may be applied to the sac to prevent recurrence.

**Comedones** (Plate xxxviii.) are small bodies consisting of concentric layers of horny cells due to hyperkeratosis at the pilo-sebaceous orifices and containing fatty material and colonies of micro-bacilli plugging the ducts of sebaceous glands. They are most common in adolescents, but are sometimes seen in children. They show on the surface of the skin as pointed papules with a black top. The black colour is due to excessive cornification and pigmentation of the epidermic cells. They are most frequently seen on the face, especially about the nose, the cheeks, and the forehead, and on the back and chest. When numerous they produce an appearance like grains of gunpowder embedded in the skin. When squeezed out they look not unlike small maggots. A parasite, the *Demodex* or *Acarus folliculorum*, can sometimes be found in comedones, but does not seem to have any causal relation therewith. By themselves comedones are harmless, except for the



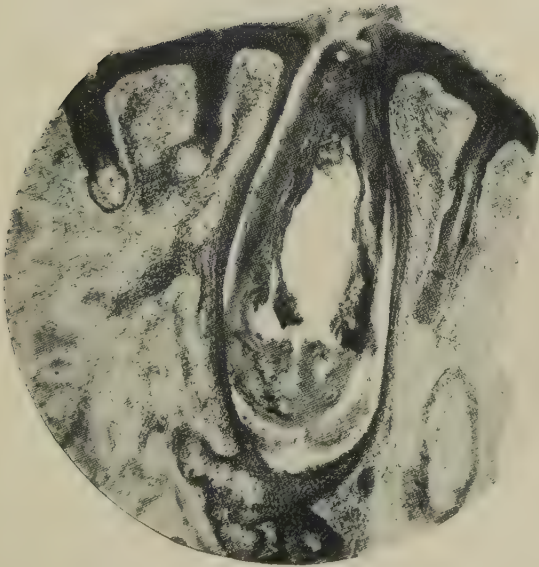


PLATE XXXVIII.-- MICROSCOPIC SECTION OF A COMEDO  
(GILCHRIST).



disfigurement which they cause ; but persons in whom they are numerous are generally the subjects of oily seborrhœa, and the inflammation of the plugs very frequently gives rise to acnè.

The **treatment** is to squeeze them out, either with the finger-nails or with a special instrument. This little operation should be done gently, as comedones are apt to become inflamed if roughly handled. Extrusion of the plugs should be followed by washing with soft soap and hot water and vigorous friction, and the application of a paste composed of *kaolin* ℥ss, *glycerine* ℥ij, and *vinegar* ℥ij, or a weak *sulphur* or *resorcin* ointment. Internal treatment directed to the stimulation of the hepatic, digestive, and menstrual functions, according to indication, is often of service.

**Grouped comedones** have been described by Thin and others which appear to be etiologically connected with dyspepsia and to have no relation to acnè. Their favourite situation is the "flush area" of the face, and they form symmetrical groups of black points smaller than ordinary comedones. Similar lesions have been seen on the trunk, but without grouping, on the forehead and cheek of young children, and also in the aged. These comedones have little tendency to become inflamed.

## 2.—DISEASES OF THE SWEAT-GLANDS

The sweat-glands may be the seat of functional disorder, the secretion being increased in amount, suppressed, or altered in character ; or they may be obstructed, with or without inflammation.

**Hyperidrosis** is a condition in which the secretion of sweat is excessive either over the whole skin or in some particular region. With the so-called "critical sweating" of certain febrile conditions we have nothing to do here. Universal hyperidrosis may occur as a result of excessive heat, as in the *sudarium* of a Turkish

bath; or of unwonted muscular exertion in a person "out of training"; or of violent mental emotion of a depressing kind ("cold sweat"); or as a form of rapid tissue waste in phthisis, leprosy, or other wasting diseases, or as a symptom associated with general paralysis or Graves's disease. In a case described by Amenita<sup>1</sup> it appeared to be due to excitation of the sweat-centre in the cord by the toxins of syphilis or by a syphilitic inflammatory lesion. When localised, hyperidrosis may be unilateral, or may be confined to particular regions, such as the palms and soles, and especially hot covered parts, such as the axillæ and genital regions, where the glands are larger. In the latter situations the secretion may not only be excessive, but may have an offensive smell (bromidrosis). In such situations intertrigo and eczematoid eruptions are often induced by the irritation caused by the decomposed secretion. Occasionally hyperidrosis may be limited to the area of distribution of a particular nerve—*e.g.* the fifth. The symptom may be continuous, or it may be excited by mental emotion or by movement, as in mastication, etc. When the palms and soles are the seat of affection it is often symmetrical, and may be so severe as to lead to a thickened, sodden, macerated condition of the skin, making the use of the hand or foot painful and difficult. In some cases Jamieson<sup>2</sup> has noticed a peculiar delicate pink tint of the inner side of the palm and the ball of the little finger and thumb. Hyperidrosis may be persistent, or it may disappear with the temporary disorder of health on which it is dependent.

The affection is probably due to disordered innervation; it is sometimes congenital, and it may be hereditary. Physiological experiments have shown that

<sup>1</sup> *Gaz. d. Ospedali e d. Cliniche*, June 29, 1903.

<sup>2</sup> "Diseases of the Skin," p. 75.

sweating may follow paralysis of the sympathetic and stimulation of sensory nerves. Localised sweating is also sometimes associated with central nervous disease, or with injury to nerve cords. It is also occasionally of hysterical origin. A moist palm is a characteristic of tipplers. The fluid itself presents no abnormality. The prognosis depends on the nature of the cause producing the condition, and this often cannot be recognised.

The **treatment** must be directed to the improvement of the general health by tonics, etc. *Belladonna* is sometimes useful; it may be given in the form of full doses of the tincture, or of hypodermic injections of *atropia*,  $\frac{1}{150}$  of a grain, *increased up to*  $\frac{1}{80}$ . *Ergot* may also be of service. Crocker speaks well of *sulphur*, a level teaspoonful of the precipitated sulphur being given in milk twice a day. *Diuretics*, as suggested by Besnier, may be useful by diverting the excess of fluid into another channel. Locally the inunction of *belladonna ointment* or *liniment* is often beneficial, and faradisation may do good. When the soles of the feet are thickened and tender a useful plan is to powder the stockings and boots with very fine boric acid every day, the boots being fitted with cork socks, which should be washed in boric acid lotion daily (Thin). Excessive sweating in the axilla or elsewhere may be checked for a time by pressing a very hot sponge to the part for a few minutes; *boric acid powder* or *salicylic acid powder* (3 per cent.) may then be dusted on. In a case treated by the author and Dr. Dore the condition yielded to the X-rays given in pastille doses.

Associated with hyperidrosis is a rare affection of the skin of the nose in delicate children, for which Jadassohn,<sup>1</sup> who observed seven cases, has proposed the name **granulosis rubra nasi**. The skin of the front

<sup>1</sup> *Arch. f. Derm. u. Syph.*, Oct.-Nov., 1901, p. 145 (abstr. by Macleod in *Brit. Journ. Derm.*).

of the nose becomes intensely red. In the cases described the reddened area was dotted over with minute deep-red specks and papules, irregular in distribution, and showing no tendency to coalesce. The papules gradually developed into pustules and quickly dried up. There was infiltration of cells around the sweat ducts, and foci of similar cells, consisting of mononuclear leucocytes and cells with vesicular nuclei, with a few plasma cells, were found in the neighbourhood of the hair follicles and scattered throughout the corium. Both the ducts and the sweat coils were dilated, as were also the blood-vessels and lymphatic spaces of the corium. The epidermis was normal, save for a slight parakeratosis around the sweat-pores.

In a case described by W. Pick,<sup>1</sup> the use of ichthyol liniment and salicylic plaster was followed by improvement, but the hyperidrosis continued, and the affection of the nose returned. This writer distinguishes it from lupus erythematosus by the absence of scales, from lupus vulgaris by the histology, and from rosacea by the age of the patients and the absence of telangiectases and of changes in the sebaceous glands. Macleod<sup>2</sup> describes a case, and further differentiates the affection from eczema by the local chronicity, the absence of vesiculation and weeping, and of infiltration, and by its irresponsiveness to local treatment. The affection, he points out, is not always limited to the nose, but may involve the upper lip, or the cheek, or the eyebrows. The cases described by the writers named, and by Hermann, were intractable, but two later cases of H. Malherbe's<sup>3</sup> yielded to quadrilated linear scarification. The affection disappears spontaneously at puberty.

<sup>1</sup> *Arch. j. Derm. u. Syph.*, Sept., 1902, p. 105.

<sup>2</sup> *Brit. Journ. Derm.*, June, 1903, p. 197.

<sup>3</sup> *Journ. des Mal. Cut. et Syph.*, Feb., 1905, p. 97.

**Bromidrosis**, or foul-smelling sweat, sometimes occurs in general conditions, such as rheumatic fever, uræmia, scurvy, etc. It is only, however, as an idiopathic condition that it concerns us here. It may or may not be associated with excessive secretion. Though occasionally general, it is most commonly localised, the parts most frequently affected being the feet, where the decomposition of the sweat gives rise to a rank and sickening stench. The soles of the feet become sodden and macerated, and so tender that walking is sometimes impossible; in severe cases inflammation and exfoliation of the skin often occur. In other parts of the body, such as the axillæ and perineum, the smell is less rancid and more fusty in character.

Bromidrosis of the feet is usually observed in young persons whose occupation involves a great deal of standing, especially domestic servants and soldiers. It is often associated with flat-foot, and is not infrequent in those who wear waterproof coverings for the feet, especially when this is combined with deficient cleanliness. The sweat has no smell when first secreted, and the fœtor is due to the presence of a special micro-organism—the *Bacillus fœtidus* (Thin).

The **treatment** must consist in the most scrupulous cleanliness, the feet being frequently washed, and the stockings being changed before the sweat with which they are soaked has had time to decompose. The method of disinfection with boric acid, already described, should also be employed. The plan adopted in the German army of rubbing the feet with *mutton suet mixed with 2 per cent. of salicylic acid* is very useful both in correcting fœtor and in preventing tenderness. The occasional application of a 5 to 10 per cent. solution of *chromic acid* is also very beneficial.

**Chromidrosis**.—Under certain very rare conditions the sweat and the sebaceous secretion may be



coloured, the tint generally being some shade of blue, but red, green, yellow, violet, and even black sweating has been observed. The phenomenon is generally localised and occurs symmetrically. A favourite situation is the eyelids, the cheeks, forehead, and side of the nose coming next in frequency. In rare cases the whole of the face, the chest, the belly, the backs of the hands and bends of the limbs, especially the axillæ and groins, are the seat of the affection. The amount of pigmentation varies at different times in the same case, being generally worst in women just before a menstrual period. Constipation or some other disorder of the health is generally associated with the condition. In the large majority of cases the patients are women—mostly young and unmarried. The neurotic temperament is a predisposing cause, the determining factor of the attack often seeming to be mental shock or emotion.

The disease is in all probability primarily a neurosis. It has been suggested that the coloration is due to the presence of indican, which becomes oxidised by exposure to the air or by some ferment into indigo. Arthur Hall has shown that blue aniline dye such as is used in cheap stockings is dissolved by the acid sweat, and stains the epidermis to a considerable depth.<sup>1</sup> In making a diagnosis our first care in such cases must be to exclude fraud. So suggestive of imposture, indeed, is the whole thing that some have expressed their disbelief in the genuineness of the phenomenon. Renewal of the pigmentation has, however, sometimes been observed in circumstances that appear to preclude the possibility of deception. The prognosis is always good as regards the ultimate disappearance of the coloration, but the condition may persist for years. Treatment must be directed to the improvement of the general health; local medication is useless.

<sup>1</sup> *Brit. Journ. Derm.*, 1902, xiv., p. 422.

Coloured sweating has also been observed as the result of the ingestion of copper (green sweat) or iron (blue sweat), or associated with the presence of certain bacteria, as in the red sweat not unfrequently seen in the axillæ and genital regions, and sometimes in yellow and blue sweat. In such cases of red sweat the microbes attach themselves to the hair-shaft and worm themselves into its substance. The condition is most common in persons who are in a weak state of health, and whose hair is fair or reddish in hue. The affection is not strictly a form of chromidrosis, the sweat itself not being coloured at the time of its excretion, but acting as a solvent for the colouring matter in the masses attached to the hair. The fungus has been cultivated by Kneas.<sup>1</sup> Examination of pure cultures showed the cocci frequently arranged in pairs and tetrads, like the *Micrococcus tetragonus*.

Bloody sweat may occur as a result of the extravasation of blood into the coils and ducts of sweat-glands. This condition may in very rare cases follow great mental emotion in persons of excitable temperament, or it may be a form of vicarious menstruation. It is sometimes also seen in new-born babes, and in such a case has been known to prove fatal. It is usually localised, the parts affected being the face, the hands, the feet, the navel, etc. Treatment can only be directed to the removal of the cause, which in adults is almost invariably the hysterical temperament.

Phosphorescent sweating has been seen in certain rare cases after eating phosphorescent fish, or even as an idiopathic phenomenon. A case in which the body-linen became luminous after extraordinary exertion is on record.<sup>2</sup> The phosphorescence is believed to be due to bacilli.

<sup>1</sup> Hartzell, *Univ. Med. Mag.* (Philadelphia), July, 1893.

<sup>2</sup> Carpenter's "Physiology," 7th edition, 1869, p. 500.

**Uridrosis** is due to the presence of urea and other urinary constituents in the sweat. Urea is normally present in minute quantities in that secretion, but under certain conditions, as in cholera, uræmia, etc., the amount may be so much increased that the skin may be coated with white crystals, as if it were covered with hoar-frost. The sweat has a urinous smell.

**Anidrosis** or diminution of the sweat secretion, may be associated with certain general conditions, such as diabetes, fever, etc.; or it may be due to a congenital anomaly in the structure of the skin, as in ichthyosis, or to a diseased condition of the skin, as in psoriasis, eczema, or sclerodermia; or it may be the result of disordered innervation, as in anæsthetic leprosy, or of malnutrition. It may also be dependent on a purely mechanical cause, such as obstruction of the sweat-ducts by epithelial *débris*, owing to imperfect washing. The secretion may be merely diminished or may be totally suppressed, and the whole skin or only some particular area may be affected. Anidrosis rarely occurs as an independent affection. The only symptom besides the disagreeable dryness of the skin is a feeling of fulness and tension on exposure to heat. In cases due to congenital anomaly treatment is useless; in other cases general invigorating treatment and stimulation of the skin by massage and hot baths may be useful.

**Sudamina** or **miliaria** are small vesicles, looking like drops of dew on the skin (Jamieson). They are due to obstruction of the sweat-ducts, with or without inflammation. The fluid contained in the vesicles is simply the imprisoned sweat, which, being prevented from issuing by the natural orifice, is effused under the horny layer. The obstruction is generally caused by an epithelial plug, formed while the functional activity of the sweat-gland is suspended, as in fevers. Some-

times sudamina occur on a dry and hot skin, where perspiration, so far from being excessive, has been deficient. The parts chiefly affected are the chest and the belly, but the vesicles may form wherever there are sweat-ducts to be blocked up. They are, as a rule, set close together, but are not often confluent. They undergo no change, and disappear completely in a few days. Sometimes they come out in successive crops. In some cases an inflammatory process, which may be primary or secondary, develops in and about the glands. The lesions in this case are bright red papules (*miliaria rubra*), the size of a pin's point, and sometimes vesicular or pustular (*miliaria alba*) on the top. The lesions are discrete, though thickly aggregated, and the fluid contained in the vesicles is serous, being the result of inflammatory exudation. The vesicles and pustules do not burst spontaneously, but dry up in a few days, forming small scales, which soon separate. The individual lesions are very short-lived, but the affection may be kept up for some time by successive crops of eruption. More or less itching is generally complained of. The appearance of the lesions is so characteristic that there can hardly ever be any doubt as to the diagnosis. *Miliaria rubra* may sometimes resemble the vesicular stage of eczema, but there is no formation of patches and no "weeping"; the affection, moreover, is very transitory. A sweat rash in a child may suggest the exanthem of an acute specific fever, but the absence of constitutional disturbance will generally prevent such a mistake. It is important, however, to remember that sudamina may be associated with a scarlatinal or other febrile rash; they are especially common in typhoid. *Miliaria* almost always yield readily to treatment, but relapse is common. It is only when the retention of the secretion is complicated by inflammation that treatment is required. Dusting

with a little protective powder and the application of a cooling ointment are all that is necessary.

The so-called **strophulus**, or "red gum," or "lichen infantum," is a form of miliaria due to too warm clothing. The remedy is obvious.

**Miliaria papulosa**, or "prickly heat," is a form of miliaria rubra, sometimes called "lichen tropicus" on account of the papular lesions by which it is characterised. The special pathological feature of prickly heat is that the inflammation in the sweat-gland is primary, and is the cause of the obstruction of the duct. The lesions are tiny acuminate papules, bright red in colour and thickly clustered together, but not confluent, with a few vesicles and pustules scattered about between them. The eruption is preceded by profuse sweating. The lesions come out suddenly, and give rise to pricking and tingling of extreme intensity. The affection shows a preference for covered parts (trunk, limbs, upper part of forehead), and it usually extends over large areas. Prickly heat is most common in the tropics, but it is not unknown in England, especially in persons who have had it before. Fat people, and those who perspire freely, are most liable to it, and the irritation of clothing, especially flannel, sometimes appears to be a determining factor. One attack predisposes to another. Prickly heat in some degree resembles papular eczema, but the circumstances of its occurrence and its sudden disappearance will serve to distinguish it.

By way of **treatment**, saline diuretics, such as the *acetate and nitrate of potash*, are very useful. Locally a soothing or evaporating lotion or a cooling ointment will give relief. Alkaline or bran baths are also beneficial. The diet should be non-stimulating, and alcohol should be taken only in the greatest moderation. Any cause of irritation in the clothing should be removed:

Care should be taken to prevent chill, and for this reason woollen underclothing should be worn.

A peculiar form of miliary eruption on the face has been described by G. T. Jackson and Rosenthal under the name of *hidrocystoma*, and by Crocker<sup>1</sup> as *dysidrosis of the face*. The lesions consisted of small vesicles resembling sudamina, but grouped so as to form patches, which persisted without any apparent tendency to spontaneous recovery. The lesions gave rise to itching, but there was no sign of inflammation. The condition appeared in Crocker's case to be associated with dyspepsia, the lesions being more prominent after meals.

## II.—DISEASES OF THE HAIR

Diseases of the hair depend on pathological changes in the follicle. These consist of inflammation in and around the hair-sac, and trophic changes leading on the one hand to overgrowth and on the other to deficiency of pigment, atrophy, and total destruction of the hair. Concretions of various kinds may also form on the hair-shaft. Besides these conditions there are the parasitic diseases, such as ringworm, favus, etc.

The inflammatory processes which most frequently attack the hair follicle have already been described under the head of "Sycosis," and incidentally with pityriasis rubra pilaris, lichen, and other conditions. A special form of chronic folliculitis of the scalp (**folliculitis decalvans**) which leads to cicatricial baldness has been described by Quinquaud and others. The affection is at first sight somewhat like alopecia areata, but at the edge of the bare patches a small red papule or patch of erythema can be seen surrounding each individual hair follicle. I have had two well-marked cases under my care, one in a young woman, the other in a man. The microscopic appearances are those of

<sup>1</sup> "Diseases of the Skin," 3rd edition, London, 1903, p. 1039.



perifolliculitis, and pus cocci are present. Quinquaud also found other micro-organisms which he thinks peculiar to this condition. The process is extremely chronic, and treatment has little effect. The indications are to check the spread of the disease and promote the growth of the hair. For this purpose parasiticides, followed by stimulating applications, should be tried. Pringle has found epilation successful.

Another inflammatory process, affecting the scalp and ending in atrophy of the hair follicles, is described by Kaposi under the name of **dermatitis papillaris capillitii**. It commences at the edge of the scalp on the back of the neck, and spreads upwards towards the crown of the head. The initial lesions are small papules, which soon coalesce into large raspberry-like vegetations in the occipital region. They bleed easily, and an offensive discharge oozes out between the papillæ, while abscesses form beneath and undermine them. These masses are composed of granulation tissue. After a time they shrink and become converted into connective tissue. The process causes baldness in some places from atrophy of the hair follicles, while in others a kind of cheloid, with tufts of hair projecting through the hypertrophied scar tissue, is produced (*acne cheloid*). The affection is known in France as *sycosis papillomateuse* and *folliculite dépilante*; in Germany as *Nackenkiloid* (Unna), and in Vienna as *Sycosis frambæsiiformis* (Neumann). The adjective "frambæsiiformis" indicates the raspberry-like (*frambæsiâ*) growth which is the characteristic lesion of the disease.<sup>1</sup>

**Overgrowth of hair** may occur either as an exaggera-

<sup>1</sup> For a careful description of this disease, which is very rare in this country, with a full account of the histological examination of a raspberry-like growth, see Fritz Porges, *Arch. f. Derm. u. Syph.*, June, 1900; abstracted in *Brit. Journ. Derm.*, 1901, p. 109.



tion of the natural growth in hairy parts or as an abnormal growth in hairless regions, as on the upper lip or the chin in women; or it may be universal. Some anomaly of dentition is often associated with general hirsuties. Dark-complexioned persons are more liable to overgrowth of hair than fair persons. The condition is not unfrequently hereditary; it may be congenital, or may become developed at any period of life, being most common in women at and after the climacteric. Hirsuties is a frequent accompaniment of insanity in women, and it is sometimes associated with disorder of the menstrual function, and with barrenness. Sometimes the condition follows a severe illness. Overgrowth of hair may also be the result of local irritation, as by blistering or stimulating applications. The condition is, as a rule, persistent, unless it can be got rid of by treatment. It is only in the slighter cases, however, that this offers any chance of success.

The only effective **treatment** is by electrolysis, but this is applicable only in a small proportion of cases. Electrolysis should be used only when the superfluous hairs are thick, dark, and well defined; the method is unsuitable in cases where there is a large undergrowth of finer hair which cannot be dealt with. Each hair bulb should be destroyed separately with a needle connected with the negative pole of a galvanic battery passed down to the bottom of the follicle, in a direction parallel to the hair-shaft. The circuit is completed by the patient's grasping the positive pole. When bubbles of froth are seen the needle is withdrawn and the hair is extracted with forceps; if it is not perfectly loose the needle must be reintroduced. Two or three dozen hairs may thus be destroyed at a sitting. The operation is not very painful, and the patient is usually so anxious to be rid of the deformity that she will bear the discomfort without flinching. The opera-

tion leaves a small red papule, which in time gives place to a macule so small as to be invisible except on close inspection. If the procedure is followed by any discomfort, the part should be bathed with warm water and a soothing lotion applied. The operation sometimes requires to be repeated, in consequence either of the follicle having been imperfectly destroyed in the first instance or of the fine downy hairs becoming coarser when the others have been got rid of. The great source of failure is the uncertainty of the direction taken by the hair within the follicle, and the consequent difficulty of reaching the bulb with the electrode. To meet this difficulty Stern<sup>1</sup> suggests that the hair should first be pulled out with forceps, and the needle then at once passed into the follicle while it is still wide open. The method undoubtedly requires skill on the part of the operator and perseverance on that of the patient, but when properly used it gives satisfactory results in a limited number of cases. The X-rays have also been used with satisfactory results; but I do not recommend this method on account of the risk involved.<sup>2</sup> When the growth is too abundant for electrolysis to be practicable, shaving is the only alternative. Pulling out the hair with tweezers only makes it grow more vigorously. Depilatories hardly ever do permanent good, and often do harm. As some uterine affection or other derangement of the health is sometimes associated with the condition, the local procedure should, when necessary, be complemented by appropriate treatment of the visceral disorder.

**Atrophic changes in the hair** may be the result of senile decay, or of some constitutional affection,

<sup>1</sup> *Therapeut. Monats.*, Aug., 1892.

<sup>2</sup> For more information on this point, see Freund, "Die gegenwärtige Stand der Radiographie," Separatabdruck aus der *Wien. klin. Woch.*, No. 37, 1900.

such as an acute fever, phthisis, diabetes, etc. They may also occur, independently of any systemic cause, as the result of local processes. The hairs become dry, lose their natural glossiness, and split or break. When the hair is long it often splits at the end: in some cases the splitting appears to take place from the root, so that at first sight there would appear to be several hairs emerging from one follicle. Associated with this condition pustular folliculitis is sometimes observed, but it is not clear whether this is a cause or a consequence of the affection of the hair.

**Trichorrhexis nodosa** is a nodular condition of the hair which was first described by Erasmus Wilson and afterwards more fully by Biegel. It occurs chiefly in men. The beard, whiskers, and moustache are more liable to attack than the hair of the head, but the hair of any part of the body may be affected. Little bead-like swellings of a whitish appearance, like "nits," are seen at regular intervals along the hair-shaft, and



Fig. 14.—Trichorrhexis nodosa.

at these spots the cortex gives way under the slightest strain, the medulla remaining unbroken (Fig. 14). Between the nodes the hair is normal. The condition is considered by P. Raymond<sup>1</sup> to be of parasitic origin, the cortex being eroded by a diplococcus somewhat

<sup>1</sup> *Ann. de Derm. et de Syph.*, tome ii., 1891.

larger than *Staphylococcus pyogenes*. Raymond believes the affection to be communicable, a fact which may account for its apparent hereditary transmission in certain cases. Sabouraud maintains that it is due simply to injuries to the hair, and Lassueur, who takes the same view, has shown that it can be produced experimentally in the hair of the moustache by the free use of soap.<sup>1</sup>

The **treatment** consists in strengthening the hair by frequent shaving. In view of the possible parasitic origin of the affection, epilation of the diseased hairs, followed by the application of an antiseptic lotion, would appear to offer the best chance of success. The general health must also be improved by appropriate measures.

A curious condition of the hair (**monilethrix** or beaded hair) was first described by Walter Smith,<sup>2</sup> of Dublin, in which the hair-shaft all along its length presents spindle-shaped enlargements at intervals, connected by constricted portions; the latter are almost devoid of colour, the pigment seeming to be massed in the nodes. The hairs break at the narrow parts. The condition affects the hair all over the body. It generally begins soon after birth, and is occasionally hereditary; it has also been known to come on after nervous shock (Unna). It appears to me to be due to a succession of atrophic changes at periodic intervals, the apparently swollen parts of the hair representing the normal shaft, and the constrictions the atrophied portions. Some consider the affection to be of tropho-neurotic origin.<sup>3</sup>

<sup>1</sup> *Ann. de Derm. et de Syph.*, Nov., 1906, p. 911.

<sup>2</sup> *Brit. Med. Journ.*, 1879, vol. ii., p. 291.

<sup>3</sup> For further information on monilethrix see a paper by Wallace Beatty and Alfred Scott (*Brit. Journ. Derm.*, 1892, p. 171); Payne, *Trans. Path. Soc.*, May 18, 1886; and Galloway, *Brit. Journ. Derm.*, vol. viii., p. 41.

F. Bering<sup>1</sup> holds that the changes in the hair are due to the pressure exerted by a cornified mass which he found plugging the funnel of the follicle. According to this view the affection is the result of a keratosis follicularis.

**Greyness of the hair** is generally a senile change, but may occur quite early in life as a result of disease, nervous shock, or long-continued nervous exhaustion. It is sometimes congenital, and occasionally hereditary. There is a family in the South of France both the male and female members of which have had for three hundred years a natural badge in the shape of a lock of white hair, generally situated over the forehead. The hair has been known to become grey or even white suddenly under the influence of terror or grief. In neurotic subjects greyness may be temporary, coming on with an attack of neuralgia and disappearing when the pain subsides. The hair generally remains discoloured, but occasionally the pigment may be restored if the cause that produced the greyness is removed. **Treatment** can be of use only when the condition has followed some exceptional nervous strain in a person not beyond middle age. Even then, however, the prospect of a cure is extremely doubtful. Nerve-tonics may possibly be of service, and *jaborandi* given internally in the form of *tincture* (m xv), or hypodermically as *hydrochlorate of pilocarpin* (gr.  $\frac{1}{10}$  to  $\frac{1}{5}$ ), may be useful.

Some cases are on record of the natural colour of the hair changing from fair, for instance, to black, under the influence of pilocarpin injections used for some other purpose. The hair has also been known to change colour after a severe illness. Artificial discoloration may be produced without the application of a dye. Workmen who have to handle aniline dyes have often deep red-brown hair; the hair of copper-smelters

<sup>1</sup> *Arch. f. Derm. u. Syph.*, May, 1905, p. 11.

often turns green, that of workers in cobalt mines blue, etc.

**Alopecia**, or baldness, is usually a senile change, but may occur quite early in life, or may be congenital, and the congenital types may be met with in several members of the same family (*alopecia congenita familiaris*). Alopecia is comparatively rare in women. The tendency to baldness is often hereditary. It is a frequent symptom of secondary syphilis, and it sometimes occurs in the later stages of that disease as the result of ulcerative processes. Early baldness may also be a consequence of any fever or other general disease that interferes with nutrition. Apart from any such cause, however, it may be produced by a complex set of factors, such as (1) the shape of the skull, the sides being so prominent that the temporal arteries are easily compressed by the hat; (2) venous stagnation owing to the same cause; (3) profuse perspiration with decomposition of the secretion, and afterwards invasion by bacteria, leading to rotting of the hair; (4) chronic dry seborrhœa of the scalp. These factors may be combined in varying degrees. The great cause of premature baldness is, however, the one last named, its effect being no doubt largely aided by the wearing of hard unventilated hats. Sabouraud<sup>1</sup> has described a microbacillus of oily seborrhœa, which he considers specific. When this parasite finds its way into the hair follicle it is said to cause first, sebaceous hypersecretion; then, hypertrophy of the sebaceous glands; next, progressive papillary hypertrophy; finally, death of the hair. The microbic theory of baldness, though attractive, cannot be regarded as at present resting on

<sup>1</sup> *Ann. de Derm. et de Syph.*, t. viii., No. 3, 1897; Galloway, "A Review of the Medical Sciences (Skin Diseases)," *Practitioner*, May, 1897. See also Sabouraud, "Seborrhée et Calvitie," Paris, 1902.



a solid basis of proof. Parker<sup>1</sup> has propounded a theory that alopecia is due to auto-intoxication with some substance derived from the lungs owing to decomposition of organic material normally present in respired air when this air is retained in the air vesicles. The apices are the places of retention, owing to diaphragmatic breathing. This, he thinks, explains the comparative unfrequency of baldness in women, in whom breathing is normally of the "costo-superior" type.

The **treatment** of confirmed baldness is not very satisfactory. If the falling out of the hair has followed an acute illness or is a symptom of syphilis, the hair will generally grow again as the patient recovers his health. Local stimulation will often hasten the process. In elderly people no treatment will restore hair lost through natural decay, but in younger persons the development of commencing baldness may sometimes be checked and the growth of new hair promoted by local treatment directed to the prevention of dryness, the cure of seborrhœa, and the improvement of the nutrition of the hair-roots. For the former purpose the application of fatty or oily matter, and especially of *lanolin diluted with vaseline and with some weak antiseptic*—such as *sulphur*—added, is very useful. For seborrhœa the treatment already recommended for that condition should be adopted. The nutrition of the hair-bulbs may be improved by stimulating lotions which redden the scalp and bring a larger amount of blood to the affected parts. For this purpose the following formula is of use :—

R̄	Borate of soda..	..	..	..	3x
	Salicylic acid ..	..	..	..	3ij
	Tincture of cantharides	..	..	..	3vj
	Bay rum	..	..	..	3xxv
	Rose-water	..	..	..	3x
	Boiling water enough to make a pint and a half.				

<sup>1</sup> *New York Med. Record*, July 13, 1901.



The borax and salicylic acid should first be dissolved in the boiling water; the bay rum, etc., should then be added to the solution, which should be filtered before being used.

Hebra's formula—

R̄	Tr. macidis	..	..	..	..	..	grm. 5
	Ol. olivæ	..	..	..	..	..	grm. 50

—may in some cases be useful. I have sometimes had good results from the following:—

R̄	Chloral hydrat.	..	..	..	..	gr. iv
	Ol. ricini	..	..	..	..	℥ xx
	Sp. vini rect.	..	..	..	..	ad 3vj

This should be sprayed on the scalp night and morning. Besnier recommends the application of *equal parts of acetic acid and chloroform*; it must be used with caution, or it may cause irritation. The following is also sometimes of service:—

R̄	Acid. salicyl.	..	..	..	..	gr. v
	Sulph. præcipitat.	..	..	..	..	gr. xv
	Naphthol β	..	..	..	..	gr. x
	Vasellini	..	..	..	..	3j

Restoration of the hair has been observed to follow the administration of thyroid extract and feeding with thyroid in myxœdema.

**Alopecia areata** is a peculiar form of baldness generally occurring in patches, which may gradually spread over a considerable area. The affection is characterised by suddenness of onset, and in severe cases by the rapidity of its extension. It generally begins on the scalp, and is often limited to that region; it may, however, be universal, the hair falling out all over the body, and leaving the patient not only with an absolutely bald head, but without eyebrows, eyelashes, whiskers, beard, moustache, axillary or pubic

hairs. In such cases the nails both of the fingers and toes often fall out with the hair.

The usual course of events is somewhat as follows :— One or more small patches suddenly make their appearance on a scalp otherwise perfectly healthy. These initial patches are most commonly situated on one side or other of the occiput, over the ridge marking the point of insertion of the trapezius muscle ; on one side or other of the vertex ; and above and behind the ears. In the early stage the skin of the patch is somewhat red, but later it acquires the whiteness and smoothness of a billiard ball. Sensation is unaffected, but the skin on the patch reacts decidedly less to stimulant substances than the rest of the scalp. The smooth bald patches are sharply defined from the neighbouring healthy parts, but the hairs at the edge are looser than normal, and, on careful search, in many cases short hairs can be found that show distinct signs of atrophy close to the root, giving them the shape of a point of exclamation (!). Sometimes the patches are small, round, and distinctly depressed below the level of the surrounding skin. Generally they continue spreading for a time, and may coalesce with others, forming denuded areas of irregular outline. When the affection has lasted some time the skin of the patches is thinned and adherent to the underlying tissues, so that it cannot be pinched up or moved upon them. Restoration of the hair takes place, sooner or later, in most cases, but the process is as a rule a long one, and several successive crops of downy hair may grow and wither away again before the patches are definitively covered over. Even after complete restoration, however, relapse is not uncommon. In some cases the baldness is permanent, but it is difficult to give a definite prognosis on this point, as complete restoration of the hair has been known to take place after ten and, in one case,

sixteen years.<sup>1</sup> As long as there is no great thinning or loss of mobility in the affected skin there is a fair prospect that the hair will be restored within a year. The chances of early recovery diminish in proportion to the shrinkage of the skin and the age of the patient.

The **etiology** of alopecia areata is somewhat obscure. There are two theories as to its production, some considering it to be a neurosis, others inclining to the belief that it is due to micro-organisms. That it is at least sometimes neurotic in origin appears to me to be proved by its not unfrequent occurrence as an immediate sequel of mental shock, such as fright; it also often seems to be directly connected with prolonged mental distress or worry. I have known total alopecia occur in a lady within forty-eight hours of receiving news of the death of her son. Stepp has recorded a case in which complete loss of the scalp hairs followed the shock of a railway accident. Jacquet regards dental irritation as one of the causes of the affection, having frequently observed the co-existence with it of dental lesions. It is generally stated to be more common in the male than in the female sex: Lassar gives the proportion as seven males to three females; Crocker, on the ground of his own experience, denies that there is any marked difference between the sexes, though even the figures which he gives show a preponderance of males. It is most common in young persons, and is rare after forty. The largest body of statistics collected is that which formed the basis of Norman Walker's introductory remarks at the International Congress of Dermatology held in Paris in 1900.<sup>2</sup> A statistical

<sup>1</sup> Michelson, quoted by Jamieson, "Diseases of the Skin," Edinburgh, 1888, p. 406.

<sup>2</sup> See the *Transactions* of the Congress (Section of Dermatology, p. 395), and a report embodying the results of a series of investigations on alopecia areata by Norman Walker and Marion Marshall-Rockwell, *Scot. Med. and Surg. Journ.*, July, 1901.

examination of the records of 4,000 cases of skin diseases at the Edinburgh Royal Infirmary showed that alopecia areata formed, roughly, 5 per cent. of the whole; that there was a greater susceptibility in males than in females, and that the most common age of incidence was between ten and twenty.

Alopecia areata occasionally follows the track of a particular nerve, and it has been known to be consecutive to injury to the sympathetic nerve. Leloir examined histologically cutaneous nerves from the affected surface, and in one case they presented all the signs of atrophic neuritis. Cases illustrating the marked influence of nerve lesions in producing alopecia areata have been published by Schutz.<sup>1</sup> A fact in some degree confirmatory of the neurotic origin of alopecia areata is its occasional association with leucodermia. On the other hand, in only one of the 4,000 cases investigated by Norman Walker and Marion Marshall-Rockwell was a possible nerve influence suggested, and these writers conclude that the nervous element in the disease has been greatly overrated.

The parasitic theory at present rests more on clinical than on pathological evidence. Some years ago Kazanli<sup>2</sup> reported the discovery of a microbe which he believed to be specific, and micrococci have been found by Robinson and others in the root-sheaths of the hair around the affected areas, and also in the lymph-spaces of the corium and subpapillary layer; but the few investigators who have seen these micro-organisms are not agreed as to their characters; and even if their existence be admitted, there is no clear proof of their causal relation to the process. Sabouraud,<sup>3</sup> who has

<sup>1</sup> *Münch. med. Woch.*, No. 8, 1889.

<sup>2</sup> *Brit. Journ. Derm.*, 1888-89, p. 132.

<sup>3</sup> *Ann. de Derm. et de Syph.*, vol. vii., 1896, pp. 253, 460, 677, 824; and *Ann. de l'Inst. Pasteur*, vol. xi., p. 134, Feb., 1897.

made extensive researches on the subject, concludes that alopecia areata is of microbic origin, the follicles being occupied by innumerable colonies in the early stage of the disease; later, when the area patch has been definitely constituted, no microbe can be found. He holds that seborrhœa oleosa and alopecia areata are essentially identical processes, due to the same micro-bacillus. Norman Walker and Miss Marshall-Rockwell found that affected hairs inoculated on Sabouraud's medium produced a glistening white growth due to the *Staphylococcus epidermidis albus* (Welch). Welch himself, however, states that this organism is constantly found on the skin even after sterilisation of the surface with antiseptics. Only in one of Norman Walker's cases did a brick-red growth develop such as is produced by Sabouraud's bacillus. In two cases pieces of skin were excised, and organisms were found in the follicles and slight inflammatory changes in the epidermis. In 70 per cent. of the cases seborrhœa was present.

There is some reason to believe that alopecia areata may in certain circumstances be transmitted from one patient to another, and in France epidemics of *pelade* are said to be not unfrequent in schools and in regiments; but Sabouraud declares, after long experience, that he has never met with an epidemic of *pelade*, the diagnosis in every alleged instance investigated by him being at fault. In eighteen of the 4,000 cases investigated by Norman Walker there was a history of possible contagion. Decisive proof of contagion is still wanting, however; and it is certain that even if the affection be contagious, such a combination of conditions must be required for it to take place that transmission is altogether exceptional.

A condition apparently identical with alopecia areata is occasionally produced by exposure to the Röntgen rays.

There appears to be some reason to believe that the frequency of the disease is increasing, at least in some places. Lassar<sup>1</sup> finds the percentage of alopecia areata to be 1·4 of all cases treated by him.

The **treatment** should be directed to the improvement of the general health, if there be any need for this, by tonics (especially iron), by sea-bathing, and other invigorating measures, such as massage and electricity. The subcutaneous injection of *hydrochlorate of pilocarpin* ( $\frac{1}{30}$  of a grain) has proved successful in my hands in a limited number of cases. Locally, strong stimulation is indicated; for this purpose *chrysarobin* ointment should be rubbed into the patches night and morning with proper precaution. The most usually accepted treatment is blistering, for which purpose *acetum cantharidis* may be used; it should be applied to the patches and the scalp around them. The same effect may be produced by *croton oil*, or *oil of mustard* in the following formula:—

R	Ol. sinapis	..	..	..	..	3i
	Ol. ricini	..	..	..	..	3ij
	Sp. rosmarini	..	..	..	ad	3iv
	M.					

This should be painted on, not rubbed in, once or twice a day. Iodine in the form of strong liniment applied daily is often of service. Jamieson speaks highly of the following formula of Erasmus Wilson:—

R	Liq. ammon. fort.	..	..	..	..	3ss
	Chloroformi	..	..	..	..	3ss
	Ol. sesami	..	..	..	..	3ss
	Ol. limonis	..	..	..	..	3ss
	Sp. rosmarini	..	..	..	ad	3iv
	M.					

This is to be rubbed gently into the bald part, at first

<sup>1</sup> *Derm. Zeitschr.*, Sept., 1900 (abstr. in *Brit. Journ. Derm.*, 1901, p. 36).



once, afterwards twice a day; in the later stages faradism is sometimes useful. All these various remedies act in the same way—that is to say, by increasing the flow of blood to the part and thereby improving the nutrition of the hair follicles. Sabouraud recommends the use of sulphur in a vehicle of some fatty substance which will mix readily with the fats of the skin.

The routine treatment adopted by Lassar is anti-septic in character. The head is washed daily for a few minutes with a strong tar soap, which is then sluiced off, after which the head is dried. The scalp is then treated successively with 2 per cent. *sublimite solution*, *absolute alcohol* with the addition of  $\frac{1}{2}$  to 1 per cent. *naphthol*, and finally with 2 per cent. *salicylic acid in oil*. By this treatment he affirms that in all fairly recent cases the disease is brought to a standstill at once.

Bulkley applies *strong liquid carbolic acid* once every two weeks to the affected areas, the extent of surface treated at one time not exceeding two square inches. The method is painful, but is said to be efficacious. It must be remembered that, whatever remedy may be employed, spontaneous cure often takes place, especially in young people, so that too much credit must not be given to drugs.

In some cases Finsen's light, high-frequency current, or X-rays, may be used with advantage.

**Pseudopelade.**—This is a rare condition first described by Brocq in 1884, in which rounded or irregular-shaped islands of cicatricial baldness occur on the scalp. These patches gradually spread and coalesce to form large, smooth shiny areas, which must be distinguished from those of favus. The disease usually occurs in adults with dark, coarse, wiry hair. Nothing is known of the etiology, cultures from the hairs usually giving negative results, and treatment is of little or no avail.



**Lepothrix**,—Certain *concretions* are sometimes seen on the hairs. The most common of these is lepothrix, which is confined to the hairs of the axillæ and the scrotum. To the naked eye the hairs are dull and lustreless, with ragged borders; they are so brittle that they break on the least traction. On microscopic examination the affected hair is seen to be surrounded more or less completely with irregular masses of concretion, in which some of the fibres of the cortex are embedded. In the axilla the concretion is often red in colour, owing to the presence of the micrococcus which produces red sweat in that situation; as this red colour is not seen in the scrotal hairs the association in the axillæ is probably accidental. Glasgow Patteson discovered a short bacillus which penetrates under the cortical scales and is constantly present in lepothrix. The condition, which is tolerably common, gives rise to no symptoms. The application of parasiticial agents would probably be the most hopeful line of treatment.

**Trichomycosis capillitii**.—Under this name Winternitz<sup>1</sup> describes an affection of the hair closely resembling but not identical with lepothrix, and due, he believes, to a different organism, a straight or slightly bent bacillus, frequently with spores at each end, and measuring  $1.8\ \mu$  to  $3.6\ \mu$  in length and  $0.6\ \mu$  to  $0.9\ \mu$  in breadth. The affected hairs were thickened, there being a concretion dark brown in colour, and irregularly margined or lobed.

**Piedra** is an affection seen almost exclusively among the natives, especially the women, in the district of Cauca, in Colombia (South America). It has also been seen in Europe. In men the beard sometimes suffers. The concretions are small, black, gritty particles, which cling to the shaft of the hair. They are so hard that they rattle when the hair is combed: hence *pie*dra, a

<sup>1</sup> *Arch. f. Derm. u. Syph.*, July, 1903, p. 81.

stone. They consist of closely aggregated pigmented spore-like bodies, due to a fungus. The affected hair has an acid smell, and the condition is believed by some to be connected with the use of a peculiar oily substance for lubricating purposes.<sup>1</sup> The treatment should evidently be antiparasitic.

**Tinea nodosa**<sup>2</sup> is a nodular concretion, also consisting of fungus spores, sometimes affecting the hair of the whiskers, beard, or moustache. It weakens the hair, which splits and breaks. Clipping the hairs short and the use of antiparasitic remedies are the methods indicated.

### III.—DISEASES OF THE NAILS

The nails are often involved in processes—such as eczema, psoriasis, lichen ruber planus, favus, ringworm—which affect the integument generally; the lesions of these epidermic appendages in such cases have been described with the diseases in question. The nails may also be the seat of trophic changes which may be due to senile atrophy or to acute illness, or may occur without any apparent cause. Sometimes the longitudinal striæ are exaggerated; sometimes transverse furrows remain as records of a fever or other severe illness; sometimes white spots become developed, and sometimes a large part or the whole of the nail may become white (*leuconychia*), due, according to Unna and Joseph, to the presence of air in and between the nail-cells; according to Giovanni, to abnormal cornifica-

<sup>1</sup> See a paper by the author in *Path. Trans.*, vol. xxx., 1879, p. 441, and Juhel-Rénoy (*Ann. de Derm. et de Syph.*, vol. ix., 1888, p. 777; and vol. i., 1890, p. 776). Cases have also been recorded by Unna (*Lewin's Festschrift*, Berlin, 1896) and Behrend. See the report of a microscopical examination of these cases by Tracheler (*Monats. f. Derm.*, xxi.).

<sup>2</sup> This affection was first described and named by Cheadle and the author (*Lancet*, vol. i., 1879, p. 190).

tion; according to Heidingsfeld to parakeratosis without infiltration of air. Shedding of the nails may occur, as already said, as a part of the process of alopecia areata, or in association with diabetes, syphilis, locomotor ataxy and other nervous disorders. Pigmentary and degenerative changes may also occur in the nails as the result of occupation, as in dyers, washerwomen, jewellers, and others.

Apart from these various causes, the matrix of the nails may be the seat of pathological processes similar to those affecting other tissues. Inflammation (**onychia**) may occur; this may be idiopathic or may follow injury, or may be a manifestation of syphilis or the result of direct tubercular infection (*onychia maligna*). In the latter case the condition is frequently associated with scrofulous lesions in the eyelid and elsewhere. If the process is acute there is great pain and redness; suppuration takes place beneath the nail, which is discoloured and thickened, and is finally pushed out of its bed and thrown off, leaving an unhealthy sore. This may heal, or the inflammation may involve the lymphatics, and give rise to *paronychia* or whitlow. The treatment for onychia is to remove the nail, if it has not already been thrown off, and apply antiseptic dressings. The general health may also require attention.

A special variety of paronychia is caused by **in-growing toe-nail**, a condition that generally occurs as the result of pressure by tight boots, or of irritation by the edge of a badly-cut nail. Ulceration takes place on one side of the nail (generally that of the big toe), which becomes embedded in inflammatory tissue, so that walking is rendered impossible. The treatment in severe cases is to divide the nail with scissors, and remove the two halves separately. As this operation is extremely painful, an anæsthetic will be necessary. The bare surface must then be dressed antiseptically. In

less severe cases the granulations may be destroyed with acid nitrate of mercury, the nail scraped thin in the middle, and trimmed smooth, so that there is no sharp edge to irritate the tissues, and an antiseptic dressing applied.

Hypertrophy of the nails (**onychchauxis**) sometimes occurs, the whole nail becoming thickened, and the free end growing out to a great length and sometimes becoming twisted like a ram's horn (**onychogryphosis**.) The condition is more common on the toes than on the fingers. The treatment is removal of the superfluous part after soaking in hot water. Onychogryphosis is frequently associated with congenital ichthyosis, and Müller<sup>1</sup> records cases in which it appeared in association with congenital hypertrichosis and with a chronic psoriasis.

Under the designation of **egg-shell nail**, Dr. Nevins Hyde, of Chicago,<sup>2</sup> describes a form of modified nutrition of the nails intimately associated with hyperidrosis. The patients were all young women below the standard of sound health, who exhibited an unusual translucency of the nails of both fingers and toes, an enfeeblement of their connection with the distal portion of the nail-bed, and a tendency to growth in an upward rather than in a forward direction. The colour of the nail in well-marked cases is precisely that of the inner face of the shell of a hen's egg—a delicate combination of white and purple: hence the name. He suggests that constant maceration of the distal portion of the nail-bed, the result of the hyperidrosis, interferes with the normal cornification of the nail-plate.

<sup>1</sup> *Munch. med. Woch.*, Dec. 6, 1904.

<sup>2</sup> *Trans. Amer. Derm. Assoc.*, 1905, p. 98.

## CHAPTER XXIII

### NEW GROWTHS

As our knowledge of the etiology of disease extends so will the group of new growths diminish, and already it is a moot question whether some of the supposed new growths may not be of parasitic origin. Until this question is finally settled there must always be a group of affections of doubtful causation which, from the presence of more or less circumscribed tumours, may be classed as new growths. The term must, however, be taken strictly in its anatomical sense, and not as meaning something *sui generis*. Neoplasms may be provisionally classified into (1) growths affecting connective and other tissues of mesoblastic origin, and (2) growths affecting epithelial tissues either alone or in addition to the connective tissues. The former category includes :—

1. Cheloid and fibroma.
2. Lipoma.
3. Nævus pigmentosus (mole).
4. Nævus vascularis (capillary or venous).
5. Telangiectasis.
6. Lymphangioma.
7. Myoma.
8. Mycosis fungoides.
9. Sarcoma.

The latter class embraces the following :—

1. Papilloma, including warts, horns, and corns.
2. Adenoma.

3. *Molluscum contagiosum*.
4. Darier's disease, or *acne cornea*.
5. Rodent ulcer.
6. Paget's disease.
7. Cancer.

As a scientific classification of new growths is at present impossible it has been thought best here to adopt the clinical division into tumours of benign and tumours of malignant nature, which has at least the advantage of being practically convenient.

### I.—BENIGN NEW GROWTHS

Under this head are placed all new growths which are strictly local in their development, and, though sometimes attaining great dimensions, remain localised throughout their course, and which when completely removed do not recur. As a rule, benign tumours are homologous in structure—that is to say, they are overgrowths of tissue normally present in the region from which they spring. Thus the group embraces cystic tumours, arising from the distension of pre-existing spaces (sebaceous and atheromatous cysts), and local overgrowth of gland structure (adenoma sebaceum), of connective tissue (cheloid and fibroma), of muscular tissue (myoma), of nerve (neuroma), of blood-vessels (telangiectasis, *nævus*), and of the lymphatic system. In addition to these are certain growths associated with degenerative changes in the skin, and of doubtful pathological nature, though known clinically to be benign—such as colloid milium of the skin, xanthoma, and molluscum contagiosum.

**Sebaceous cysts** are most commonly seen on the scalp, the face, and the back, but they may develop in any part of the skin supplied with sebaceous glands. They occur more frequently in women than in men. There may be one or several cysts. They are rounded

in shape, often somewhat flattened on the top, and may be as large as an orange. They grow slowly, and cause no pain unless they become inflamed. To the touch they feel like lumps of dough. The duct may be patent, so that some of the contents can be pressed out, or it may be closed; the latter is the more common condition when they are situated on the scalp. The skin over them is generally normal, though somewhat redder than the surrounding parts. When the cysts are inflamed the skin becomes bright red and the tumour itself feels softer and sometimes breaks down into a fungating ulcer.

There is some doubt as to the pathology of these growths. Paget regarded them as new growths, but most observers believe them to be simply retention cysts, the accumulation of epidermic *débris* and sebaceous matter in the follicle causing expansion of its cavity, with secondary hypertrophy of their walls. Sebaceous cysts are distinguished from fatty tumours by the absence of lobulation and the fact that the contents can be squeezed out when there is an opening. They should be incised and the cyst wall carefully scraped out.

**Dermoid cysts** occasionally occur on the skin. They are often very numerous, and resemble fibromata, but on cutting into them a sebaceous-looking material escapes. They should be excised, unless their number makes interference undesirable.

The cystic tumours of the skin caused by *Cysticercus cellulosæ*, echinococcus, etc., have already been referred to.

**Adenoma sebaceum** occurs chiefly on the face. The lesions are small, firm, whitish, or yellowish papules—or rather tiny solid tumours—firmly embedded in the skin at different depths or projecting from it, and varying in size from that of a pin's point to that of a



pea. Sometimes they are red, owing to dilatation of the capillary vessels on their surface, and intermingled with them are numerous telangiectases. The lesions are usually symmetrical in distribution, and though thickly crowded together, do not run together to form patches. The tumours present no opening, but when they are pricked inspissated sebum can be squeezed out of them. They cause no inconvenience as a rule, though occasionally they are painful in cold weather. The condition is generally congenital, but further crops of lesions appear after birth, especially at puberty. They undergo little change, though some of the lesions may undergo spontaneous involution. Rosacea is sometimes associated with the condition. Other textural defects in the skin—warts, nævi, keratosis pilaris, etc.—often coexist with adenoma sebaceum; and the patients are generally of a low grade of mental development, often imbeciles or epileptics.

According to Pringle, to whom we owe an excellent account of this disease,<sup>1</sup> the essential lesions consist of an increase in number and complexity of the sebaceous glands, recalling at first sight the general appearance of sections of the hypertrophic masses that are sometimes seen in advanced rosacea. The condition is not improbably due to excessive development of gland structures from superfluous embryonic remains in the skin.

The appearance of the little firm tumours, thickly grouped about the sides of the nose, intermingled with telangiectases, with the history of congenital origin and the association of other anomalous conditions of the skin and mental deficiency, will suffice in most cases to identify the disease.

No internal medication has any effect on the con-

<sup>1</sup> *Brit. Journ. Derm.*, vol. ii., 1890, p. 1 *et sqq.* (with a good coloured illustration).

dition. Pringle found that attempts to scoop, gouge or bore out the little tumours with instruments used for such purposes in cases of lupus were painful and unsatisfactory, owing to the depth at which they were situated and the firmness with which they were embedded. Superficial scarification was also unsuccessful. Electrolysis has been used by Crocker with success in a case in which the nodules were not large.

**Cheloid.**—The normal process of healing by second intention is a transformation of vascular embryonic (granulation) tissue into fibrous tissue. Sometimes the transformation is tardily effected; the granulations continue to form, and are converted into imperfect but excessive scar tissue—hypertrophied cicatrix. A still further departure from the normal results in the formation of distinct fibrous growths—scar cheloid. In some cases growths of fibrous tissue resembling scar cheloid arise without any previous wound having been noticed; these cases have been classed together as spontaneous or true cheloid. A remarkable example of this has been recorded by Walter Smith.<sup>1</sup> The apparently spontaneous cheloid is most frequently observed on the trunk, especially over the sternum, and on the face; and when it is remembered how frequently acne pustules or slight injuries and the resulting scars are overlooked in these parts the use of the term “spontaneous” is probably unjustifiable. Hence the term “cheloid” will be used here to denote all forms. The term “hypertrophied cicatrix” should be confined to cases in which the growth does not extend beyond the limits of the wound, “cheloid” being used to denote the condition when it has so existed.

The primary lesion is a white or pinkish swelling, which may project above the level of the skin or may lie within the corium. Sometimes dilated vessels are

<sup>1</sup> *Brit. Journ. Derm.*, 1888-89, p. 157.

visible on the surface. The shape of the swelling differs according to its origin. Usually it tends to assume a rounded contour, but it may be depressed in the centre and it may extend laterally by claw-like processes—whence the name “cheloid” (from *χηλή*, a claw). Occasionally it has a warty aspect, constituting the verrucose cicatricial tumour or warty scar. Cheloid is a result of active growth, spreading at the edge and by no means always confining itself to the site of the scar, but extending beyond it. In such cases it is possible that the process may be infective.

Whilst cheloid may appear over any part of the body, it is commonest over the sternum and the rest of the trunk, and on the face and head. Most extensive formation of cheloid tumours has been observed after smallpox. The tumours form in a few weeks, and usually continue to enlarge for a long time. Sometimes they undergo involution. In a case of Goodhart's, large cheloid tumours which formed all over the body after smallpox had disappeared at the end of a few months. Hutchinson thinks that this tendency to involution is most marked in young subjects. As a rule, during many years the tumours either remain stationary or, at any rate, enlarge very slowly. Cases are recorded in which cheloid has undergone sarcomatous change.

The tumours are usually tender, and may be the seat of itching, pain, and burning. Sometimes they give rise to no symptoms. The immediate cause of cheloid is unknown. The tumour occurs at all ages, but chiefly between fifteen and fifty. It is more common in negroes than in whites.

Virchow explains multiple cheloid as the result of an irritation, the degree of which is marked by the extent of the lesions. The tumours are covered by epidermis, which may be considerably thinned, so that

the papillæ may be absent. The bulk of the growth consists of fibrous tissue, more cellular and vascular than normal scar tissue. The diagnosis presents no difficulty, the scar-like appearance and claw-like processes of the tumours being characteristic.

Removal or destruction of cheloid is never successful. Pressure with an elastic bandage, massage, and deep gashing of the tumour in different directions, so as to divide as many vessels as possible, have given good results in some cases. The application of *unguentum hydrargyri* and other preparations of mercury is often followed by good results. *Electrolysis* answers well when the growth is small. Even in the case of growths of moderate size I have seen complete cure effected by electrolysis applied once a week for some time, followed by daily massage. I have found that application of the X-rays has led to marked diminution of the growth, and pain has been greatly eased. The light treatment is also satisfactory, either used alone or in combination with X-rays. Excellent results have been obtained from radium. When cheloid is attended with pain *cocaine* should be injected in and around the tumour, or *belladonna* or *opium* may be applied locally.

**Fibroma.**—Under this head are included soft fibrous growths (fibroma molluscum), firm fibromata, neuro-fibromata, and diffuse fibroma, which is one form of dermatolysis.

**Fibroma molluscum** is a pear-shaped or rounded fibrous tumour, covered as a rule by smooth skin, and varying in size from a pin's head to an orange. This tumour is not uncommon, and is almost always multiple. Usually the growths are pedunculated, but sometimes they form flat masses embedded in the corium. Occasionally they occur in immense numbers, and then the sebaceous glands in the skin covering them

may be dilated, and in uncleanly persons the excessive secretion of sebum by decomposition may give rise to offensive odours. Wickham<sup>1</sup> has called attention to the association of brownish pigmentary stains and violet-coloured prominences and blotches in association with these growths. They are commonest on the trunk (Plate xxxix.), then on the head and face, and after that on the limbs; they are rare on the palms and soles. They have been met with on the tongue and buccal mucous membrane (Crocker). The tumours tend to increase in size and number, but they may remain stationary for a number of years. Occasionally they slough and ulcerate. They cause no pain, except when they are inflamed as the result of accidental injury.

The growths consist chiefly of lax fibrous tissue sparingly supplied with blood-vessels and containing a few nerves. Nothing is known as to the etiology of the condition. The origin of the growths has been variously traced to the corium and the subcutaneous tissue (Virchow). They may appear in early childhood. They are distinguished from fatty tumours by the fact that they are pedunculated and present no trace of lobulation, and from sebaceous cysts by their solid structure.

The **treatment** is removal by ligature, galvano-cautery, or the knife, special precautions being taken against hæmorrhage, which may be formidable. They may, however, be so numerous as to render treatment inadvisable.

**Diffuse fibroma** is a variety of fibroma molluscum in which the tumours are large and attached by broad bases. As they are usually multiple they overlap each other, forming large folds of loose skin with dilated sebaceous orifices. The condition must be distinguished

<sup>1</sup> *Brit. Journ. Derm.*, 1890, p. 151.



PLATE XXXIX.—FIBROMA.







PLATE XL—FIBROMA WITH ELASTIC SKIN AND  
CONGENITAL DISLOCATIONS.



from elastic skin, which is an anatomical peculiarity. (Plate XL.).

**Von Recklinghausen's disease** (Plate XLI.).—A special type of multiple fibroma of the skin, described by Von Recklinghausen and known by his name, is characterised by coffee-coloured pigmentation on and around the nodular tumours, which are irregularly distributed, though in exceptional cases they follow the course of one or more individual nerves. In one of my own cases there were only nine tumours altogether, irregularly scattered over the trunk and limbs in relation to different cutaneous nerves. In association with the growths there is perceptible thickening of the nerves of the arms. The distinctive feature of fibroma of the Von Recklinghausen type is that whereas ordinary fibroma is composed of fibrous tissue, this is made up of fibrous and nervous tissue.<sup>1</sup> A case has been recorded by Preble and Hektoen<sup>2</sup> in which multiple neuro-fibromata of the skin were associated with arthritis deformans. In an atypical case under the author and Wilfrid Fox there were no large pendulous tumours on the skin, only very fine fibrils in the skin were affected, the pigmentation was mottled, and there were fits, due not, as might have been supposed, to intracranial neuro-fibromata but to hysteria.<sup>3</sup>

**Hard fibromata** and **neuro-fibromata** vary in size from a pin's head to very large dimensions. They usually arise in the corium, but may start in the tendon-sheaths or the sheaths of the nerve fibres. In the latter case they are called neuro-fibromata: these lie as a rule in the subcutaneous tissue, but in rare cases

<sup>1</sup> For an exhaustive study of this affection, see work by Alexis Thomson, Edinburgh.

<sup>2</sup> *Amer. Journ. Med. Sci.*, January, 1901 (abstr. in *Brit. Journ. Derm.*, 1901, p. 225).

<sup>3</sup> *Brit. Journ. Derm.*, April, 1907, p. 109.

have been found in the skin. Several tumours may coalesce into a single lobulated mass (Schwimmer). They occur on the trunk and extremities, and are usually isolated. Neuro-fibromata are usually multiple, and are movable in the subcutaneous tissue. The tumours tend to enlarge slowly, but sometimes calcification or fatty degeneration takes place. Thus blood-vessels may become dilated into blood cysts (telangiectatic form). The neuro-fibromata, owing to the nerve-fibres stretched over or included in them, are often extremely sensitive to pressure. The other forms are not sensitive. On section, hard fibromata resemble tendon tissue.

Nothing is known as to the etiology of these growths. Like the soft fibromata, they may become developed very early in life. The diagnosis is usually easy. Neuro-fibromata may be mistaken for rheumatic nodules. The latter, however, occur chiefly in the region of the elbows and about the scalp, and there is a history of rheumatism.

The **treatment** is the same as that of soft fibromata. Neuro-fibroma may be successfully dealt with by excising a portion of the nerve cords supplying the tumours.

**Myoma cutis** occurs either as a superficial growth or as a tumour originating from the subcutaneous muscular structures. Of the former kind Crocker<sup>1</sup> collected ten cases recorded in medical literature, and added one of his own. Later Leslie Roberts<sup>2</sup> collected five further cases, and added one of his own. Another case was published by Marschalko<sup>3</sup>. The author had two cases under observation, the patients being father and daughter. The former, aged fifty-four

<sup>1</sup> *Brit. Journ. Derm.*, February, 1897.

<sup>2</sup> *Ibid.*, April, 1900.

<sup>3</sup> *Monats. f. prakt. Derm.*, October 1, 1900.



PLATE XLI.—VON RECKLINGHAUSEN'S DISEASE  
(DR. WHITFIELD'S CASE, 1901).

*(Reproduced from the West London Med.-Chir. Journ.)*





PLATE XLII.—MYOMA CUTIS.





a nervous subject, was troubled with "rheumatic" pains about the ankle-joints at the age of twenty, when the tumours were first noticed. These were situated on the left side of the chest, and the man's attention was first called to them by pain described as being "like the cutting of a knife," and greatly aggravated by cold. The daughter, who suffered from neuralgia, had similar tumours in various parts of the body. They began as hard red pimples on the leg (Plate XLII.), which caused "cramp," aggravated by cold. Similar growths appeared later in the right hypochondriac region and on the arm; as a rule several appeared at once and at some distance from each other; occasionally they coalesced. They were not painful for four or five years after their first appearance, but as they grew larger they became tender, and were the seats of frequent attacks of neuralgic pains.

Superficial myoma generally occurs in the form of nodular tumours on the arms, back, chest, and cheek. The deeper kind occurs as a solitary tumour, chiefly on the breasts and genitals. The distinctive clinical feature of myoma cutis is that it contracts under the influence of cold. The superficial growths, which are generally multiple, are soft, elastic, and often painful. They are sometimes sessile, sometimes pedunculated. They do not, as a rule, attain a very large size. The back is the commonest site, but they may occur on the scrotum, the nipple, and in other parts. They develop very slowly, and often start in an ecchymotic spot. The skin over them is generally red, but may be natural in colour. Sometimes they undergo involution, but as a rule they slowly increase in size and also in number, often coming out in crops. As they develop they become more painful. The diagnosis can be made only by exclusion.<sup>1</sup> The growth is principally made up of

<sup>1</sup> "A Case of Myoma Multiplex of the Skin" (illustrated),

unstripped muscular fibre, with which may be mixed a greater or lesser amount of fibrous tissue, constituting **fibro-myoma**; or the structure may be largely erectile (**angio-myoma**); or the lymphatics may be involved (**lymphangio-myoma**).

These growths may arise from (1) the vessel walls, (2) the arrectores pilorum, (3) the deep layer of unstripped muscle in the nipple, scrotum, etc.

The only **treatment** for myomata, of whatever kind, is to remove them by surgical methods when they become inconvenient from their size or are seriously painful.

**Neuroma**, so far as it affects the skin, has been described under the head of neuro-fibroma.

**Myxoma**, when it arises in the skin, usually forms rounded pedunculated translucent tumours. It is commonest in the loose skin of the scrotum and the labia, but it may occur in any part. The growths are usually multiple. They tend to enlarge slowly. The gelatinous appearance of the tumour is characteristic. The absence of a central depression distinguishes them from molluscum contagiosum. They are made up of lax tissue, chiefly fibrous, with wide interstices filled with mucilaginous matter containing mucin. The treatment of myoma is to remove the growths by ordinary surgical methods.

**Myxœdema** may be regarded as diffuse myxoma. The condition belongs more to the province of general medicine than to that of dermatology.

The skin may be the seat of a variety of conditions, congenital and acquired, in which *permanent dilatation*

Crocker, *Brit. Journ. Derm.*, vol. ix., p. 1, 1887. In a paper contributed to the same journal (Jan., 1907) Dr. Wallace Beatty described what he believed to be the twenty-seventh recorded case.



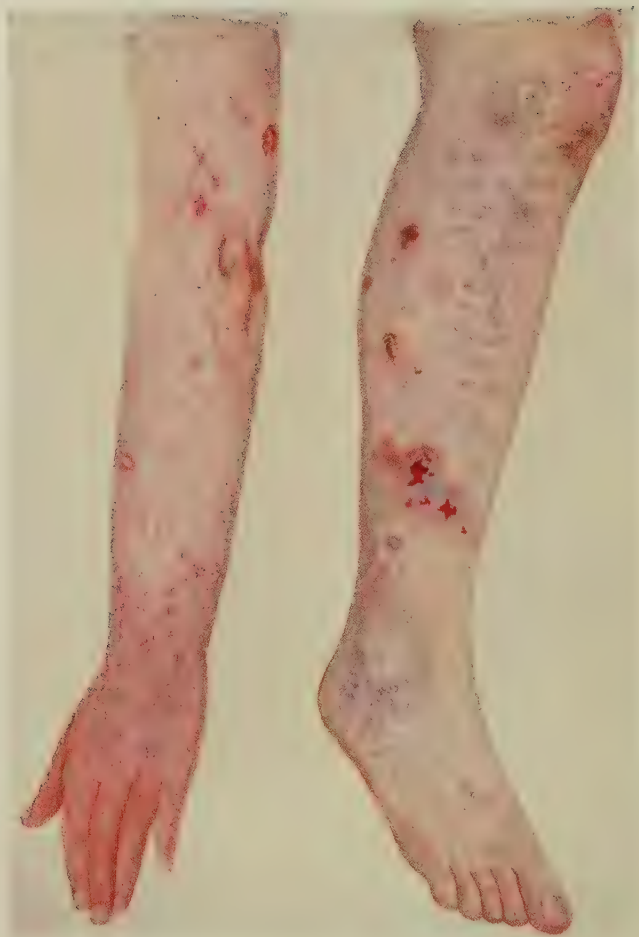


PLATE XLIII.—TELANGIECTASIS WITH ULCERATION.

of blood-vessels, sometimes with formation of new vessels, is the most prominent anatomical feature.

**Telangiectasis** is an acquired condition in which the capillaries are considerably dilated over a larger or smaller area of skin. They are often stellate in shape, a number of vessels radiating from a raised central dot which is the enlarged loop of an arteriole. These lesions are generally seen in persons with a delicate skin; occasionally they follow injury, and in a person who has been struck by lightning the vessels of the skin can sometimes be seen clearly marked out as if they had been injected. Telangiectasis also occurs in the upper part of the body, and on the face and neck, particularly in elderly people, in the form of small spots constituted by small tufts of dilated capillaries. Clinically, telangiectasis resembles the slighter forms of vascular nævus. The condition is most common on the face, especially in persons much exposed to the weather, and is often associated with inflammatory and other morbid processes, such as rosacea, adenoma sebaceum, etc. (Plate XLIII.). Telangiectases of the skin occurring in the subjects of Graves's disease have been reported by Létienne and Arnal<sup>1</sup> and by Nevins Hyde.<sup>2</sup> If treatment is required the dilated vessels should be obliterated by electrolysis or galvano-cautery. The author and Dr. Dore showed at the Dermatological Section of the Royal Society of Medicine in May, 1908, a case of acquired bilateral telangiectases of legs and feet caused by pressure and exposure to cold. Colcott Fox reports a case of bilateral telangiectases of the trunk with a history of marked epistaxis in childhood and recent rectal hæmorrhage, and gives an account of other cases.<sup>3</sup>

<sup>1</sup> *Arch. gén. de Méd.*, 1897, s. vii., pp. 513-523.

<sup>2</sup> *Brit. Journ. Derm.*, Feb., 1908, p. 33.

<sup>3</sup> *Brit. Journ. Derm.*, May, 1908, p. 145.

**Nævus vascularis**, or cutaneous angioma, is a congenital condition characterised by the over-development of the vascular tissue in the skin. Frequently at first cutaneous nævi resemble flea-bites; by the formation of new capillary vessels they cover a wider area, and constitute the "port-wine mark." If they remain smaller, with dilated vessels at the outer part, the spider-like nævus is formed. With or without a growth of new capillaries in the corium there may be a new formation of veins in the subcutaneous tissue, thus constituting the capillary venous or the venous nævus, soft, compressible, slightly lobulated tumours of greater or less extent, and either bright red or purple in colour according as the corium is or is not affected. Sometimes a venous nævus contains a considerable amount of fat, constituting the nævus lipomatodes, which has the combined characters of a venous nævus and a lipoma.

Capillary nævi occur most frequently on the face, head, and neck, but they are met with in other parts. Venous nævi are met with on any part of the body, not unfrequently on the lips and tongue. The sago-grain tongue is regarded as a form of nævus. Nævi may be fully formed at birth and remain stationary throughout life. Frequently, however, they are small at birth and extend slowly for some years, after which they remain stationary. Very many nævi which are present at birth disappear within a few months. Slight injuries to venous nævi frequently cause hæmorrhage or result in inflammation which may lead to extensive ulceration or to spontaneous cure by thrombosis or sloughing. Cysts may form from obliteration of vessels.

The microscope shows the growth to consist almost entirely of blood-vessels. In the case of the nævus lipomatosus there is also a good deal of new-formed fat. Of the causation of the condition nothing is known. The newly-formed vessels arise from pre-



existing vessels in the corium or subcutaneous tissue. In very slight cases there is always a chance that the condition may disappear spontaneously; compression of the dilated vessels, as by the application of collodion, may help to bring this about. In ordinary cases various methods have been found successful. In suitable cases good results have been obtained from applications of radium bromide. To Louis Wickham, of Paris, the credit is due for the pioneer work with this potent remedy. Inflammation induced in the nævus will sometimes effect a cure. For this purpose vaccination or the injection of irritants and astringents, such as *tincture of iodine*, *perchloride of iron*, or *tannin*, may be found of service. Electrolysis has given good results. The needle must be passed entirely through the tumour in several directions. Multiple puncture with the galvanocautery has also proved satisfactory in some cases. Caustics, such as *fuming nitric acid* and *acid nitrate of mercury*, have their advocates. In choosing a method the practitioner must be guided by the size and structure of the nævus, and the nature of the scar that is likely to be left. For large projecting nævi the best treatment is excision.

**Nævus pigmentosus**, or mole, has no pathological or clinical relation with the true nævus that has just been described, though the two are frequently present in the same person. The lesions consist of pigmentary macules, or slightly raised pigmented patches, with or without an excessive growth of hair. In the latter case the condition is sometimes termed *nævus spilus*. The pigmentation, which Fabry<sup>1</sup> holds to be hæmatogenous, may be slight or absent (white moles; Hutchinson). Sometimes moles are more distinctly raised, and contain a quantity of fat. Another variety consists of pigmented papillomata, which may have a wide extent.

<sup>1</sup> *Arch. f. Derm. u. Syph.*, Feb., 1902.



Fig 15.—Large Hairy Mole (*Nævus pilosus*) and several Benign Fibrous Tumours (*Molluscum fibrosum*), covering the “bathing-drawers region,” with smaller outlying Moles.

(After *Michelson.*)

These moles, which are not hairy, are called verrucose nævi.

Moles are commonest on the face, neck, and trunk, but they are also met with on the limbs. Usually small, they may occupy extensive surfaces, as in Fig. 15. They are often single, but frequently occur in great numbers. They have been observed to be distributed in the region supplied by a particular cutaneous nerve. Warty moles are usually unilateral. Congenital in origin, or developing very soon after birth, they remain stationary or grow with the growth of the individual. Not unfrequently they become the starting-point of carcinoma or of sarcoma, usually of the melanotic variety. Some have maintained that all melanotic growths of the skin have their origin in moles, but after a careful examination of the subject, Dr. Wilfrid Fox<sup>1</sup> concludes that while in the vast majority of cases such growths originate in the skin, both melanotic carcinoma and sarcoma may arise entirely apart from moles. This author believes that the process by which a mole is formed in an infant is identical with that which is seen when a mole becomes malignant, and suggests that every mole in an infant would be a melanotic carcinoma but for the power possessed by the young corium of cutting off the cells, a power which may be lost after middle age or severe injury. He also concludes that the pigment appears to be intimately connected with the prime cause by virtue of which moles become malignant, whatever that cause may be. If moles cause great disfigurement or threaten to become malignant they should be freely removed with the knife. They should never be irritated with caustics, lest they become malignant.

**Angiokeratoma** is a rare affection, characterised by the development of capillary telangiectases, with small

<sup>1</sup> *Brit. Journ. Derm.*, Jan., Feb., March, 1906.

warty growths on the hands and feet, chiefly on their dorsal aspects (Fig. 16). It has been known to occur on the scrotum.<sup>1</sup> The initial lesions are tiny red or violet spots, at first discrete, afterwards becoming clustered into irregular groups and forming small patches



Fig. 16.—Angiokeratoma.

(After Mibelli.)

distinctly raised, rough on the surface, hard, and sometimes covered with thickened epidermis so as to resemble warts. They become paler on pressure, but the blood cannot be completely forced out of them, a small bright red or black spot, clearly representing a capillary loop, always remaining in the centre. On pricking them blood escapes. No retrogressive changes occur in the

<sup>1</sup> Fordyce, *Journ. Cut. and Gen.-Urin. Dis.*, March, 1896.

lesions, but fresh telangiectases develop from time to time. The condition gives rise to no subjective symptoms.

Angiokeratoma commences, as a rule, in early adult life, and is always associated with a marked tendency to chilblains. Most of the patients in the cases so far recorded have been young women. There sometimes appears to be an hereditary element in the disease. I have had under my care a father and two children, the condition in the latter being congenital. Though all of them suffered from chilblains, no telangiectases developed on the parts affected by chilblains. The essential feature of the process is telangiectases resulting from repeated temporary dilatation of the small blood-vessels. The hyperkeratinisation which gives the fully-developed lesions their warty appearance is a secondary change. Angiokeratoma can hardly be mistaken for anything else. The lesions show no tendency to spontaneous involution, and fresh ones usually come into existence every winter. Pautrier holds angiokeratoma to be a tuberculous affection, but in summarising his paper MacLeod<sup>1</sup> justly remarks that if the slight histological resemblances and the clinical associations described by this author are sufficient ground for including this affection among the tuberculides, many other forms of dermatitis might be brought within the group. Dr. Dore<sup>2</sup> reports a case of angiokeratoma with chilblain circulation, erythema pernio, and Bazin's disease, which appears to bear out the view that the inefficiency of the circulation is a predisposing factor rather than a result of tubercular infection.

The best **treatment** is *electrolysis*, which has been successfully used by Pringle. A fine steel needle connected with the negative pole is inserted into the

<sup>1</sup> *Brit. Journ. Derm.*, Aug., 1904.

<sup>2</sup> *Ibid.*, Sept., 1903, p. 323.

telangiectasis, the positive pole being held in the other hand, and a current of two to three milliampères allowed to pass for thirty seconds. The procedure causes some pain, but is not followed by scarring. The general measures for the improvement of the circulation in persons subject to chilblains are also indicated.<sup>1</sup>

**Infective angioma.**—Under this name Hutchinson has described an affection characterised by minute red points “like grains of cayenne pepper” embedded in the skin. The lesions are arranged in groups which spread out peripherally while clearing up in the centre, thus forming rings. Outside these, fresh points or “infective satellites” arise, and by the meeting of adjacent rings large areas of skin become affected, the lesions having the gyrate serpiginous outline common in such circumstances. Most of the little points can be obliterated by pressure, but some, larger than the others, cannot. The limbs are generally the seat of the affection, which has also been seen on the face and trunk. The disease spreads slowly, with intervals of remission. It begins in early life, vascular nævus appearing sometimes to be a predisposing factor; indeed, Jamieson thinks the condition itself is simply that of a superficial nævus, and in this view I agree with him. Hutchinson, on the other hand, looks upon it as a kind of lupus, and allied to lymphangiectodes. The fact of the development after birth and the serpiginous character of the telangiectases will suffice to identify the affection. The only treatment that seems likely to be successful is electrolysis.

**Lymphangioma circumscriptum cutis** (Plate XLIV.) is an affection characterised by the overgrowth

<sup>1</sup> An excellent account of angiokeratoma (with coloured illustrations), embodying nearly all the literature of the subject, up to that date was given by Pringle in the *Brit. Journ. Derm.* for August, September and October, 1891.





PLATE XLIV.—LYMPHANGIOMA CIRCUMSCRIPTUM





and dilatation of lymph vessels and the formation of new ones in circumscribed areas of the skin. Patches of greater or less extent are formed, covered with clusters of small vesicles. These are deep-seated and have thick walls, and sometimes have a superficial resemblance to warts. They have been met with on the limbs, the face, the neck, and the shoulders. They are pale or straw-coloured, sometimes marked with red striæ, and contain clear alkaline fluid in which a few lymph corpuscles are found. The condition is very chronic, spreading slowly at the circumference, where fresh vesicles develop. The affection is probably congenital, though generally first noticed in early childhood, but the conditions which lead to the development of the vesicles are involved in obscurity. Pollitzer,<sup>1</sup> as the result of histological examination, inclines to the view that a deep obstruction, either lymphatic or partly venous and partly lymphatic, is the first link in the chain of events that leads to the formation of lymphangioma. The sexes appear to be equally liable to the affection. Sometimes the patches are partly fibro-cavernous in structure, and the occasional association of the lesions with venous nævi suggests that the blood-vessels are, at least in some cases, concerned in the process. Brocq and Bernard<sup>2</sup> hold that the disease is primarily one of the lymphatics, and that the appearance of blood is due either to the rupture of capillaries into the lymphatic dilatation, in which case the fluid of the vesicle is pinkish, or to the rupture of capillaries into the floor of the vesicles but not into the cavity, this form giving rise to the appearance of a dark tuft in the centre of the vesicle.

In one recorded case,<sup>3</sup> that of a boy aged nine,

<sup>1</sup> *Trans. Amer. Derm. Assoc.*, 1906, p. 108.

<sup>2</sup> *Ann. de Derm. et de Syph.*, March, 1898.

<sup>3</sup> Hoggan, *Journ. Anat. and Phys.*, 1884, p. 304.

dilatation of the lymphatics occurred after two attacks of inflammatory character in two successive years. The dilated vessels filled and became tense when the patient stood up, and collapsed, leaving only indefinite traces, when he lay down. Microscopic examination showed plexiform dilatation of lymphatics, the walls of which, as well as the surrounding tissues, were normal. For this condition A. G. Francis<sup>1</sup> has proposed the term "lymphoma simplex."

Under the name of **lymphangioma tuberosum multiplex** Kaposi<sup>2</sup> described a condition met with on the trunk and neck of a woman aged thirty-two; it had been noticed during childhood, but had extended in the few years previous to her coming under observation. The lesions consisted of close-set vesicles, the size of lentils and smaller. Microscopic examination showed small lymphatic dilatations throughout the corium. Besnier and Doyon consider that such cases may be examples of cystic adenomata developed in the sweat-glands. After reviewing all the cases reported, Francis concludes that they are examples of lymphangioma, and suggests the term first proposed by Török, "lymphangioma cavernosum." The etiology is very obscure, and many different names have been proposed for the affection, among them eruptiva hydra-denoma, cystic benign epithelioma, and epithelial cystadenoma.

Under the head of **hæmato-lymphangioma** Francis has classed several groups of cases:—One group con-

<sup>1</sup> See "Lymphangioma Circumscriptum Cutis," *Brit. Journ. Derm.*, Feb. and March, 1893, where a comprehensive account of the whole subject is given; also "Five Cases of Lymphangioma," Leslie Roberts, *Brit. Journ. Derm.*, vol. viii., p. 309; "Lymphangioma Circumscriptum s. Cystoides Cutis," Max Freüdwiler, *Arch. f. Derm. u. Syph.*, Bd. xli., Hft. 3, p. 323.

<sup>2</sup> *Op. cit.*, vol. ii.

tains the modification of ordinary angiomata (nævi) of the skin and mucous membranes, termed "wart-like degeneration," the best known example of which is the "sago tongue." The white wart-like prominences contain cystic spaces filled with clear fluid. Most observers in England regard them as dilated lymphatics; others—for example, Besnier and Doyon—consider them to be the result of the occlusion of blood-vessels, and hold that the condition is allied to angiokeratoma.

In another group the primary condition is a well-marked angioma, upon which a condition of lymphangioma afterwards develops. The first case was described by Tilbury and Colcott Fox.<sup>1</sup> A man aged twenty-one, born in Mauritius of English parents, had two large nævi on the left thigh, which had remained unchanged. At the age of six months the veins of the left calf began to enlarge. At the age of two years a number of little "wart-like" growths appeared on the skin of the left buttock, the flexor surface of the left knee, and the left half of the perineal region, on areas quite distinct from those occupied by the nævi. At the same time he had an attack of fever, which left him very prostrate for six months. On each occasion the skin affection became worse, the "warts" enlarging and becoming more vesicular in appearance.

Another group of cases, included under the same heading by Francis, resemble those first described by Hutchinson. A case has also been recorded by the author.<sup>2</sup> The patient was a delicate, fair-complexioned little girl, aged seven. The disease made its first appearance when she was a few months old, as a group of vesicles in the left scapular region; the affection spread

<sup>1</sup> "Case of Lymphangiectodes," *Path. Soc. Trans.*, vol. xxx., p. 470.

<sup>2</sup> "Internat. Atlas of Rare Skin Diseases," fasc. i., pt. i.

slowly and caused but little inconvenience. There were no attacks of lymphangitis.<sup>1</sup>

The **treatment** of these conditions is destruction by *electrolysis*, cautery, X-rays, or surgical *removal*. In either case the operation must be thorough or recurrence is almost certain to take place.

**Xanthoma.**—This term is applied to a somewhat rare disease, first described by Addison and Gull, characterised by the formation of plates or nodosites of a yellow or yellowish-white colour embedded in the corium. When the lesions are in the form of plates (*xanthoma planum*) they vary in size from that of a pin's head to that of a finger-nail; the larger plates are often composed of a group of smaller ones. They are flat, or have a slightly raised margin; they are so soft as often to be imperceptible to the touch when the finger is drawn over them. The skin covering the plates presents the normal plication, and is not scaly.

The nodular lesions (*xanthoma tuberosum*) form papules, which are sometimes separate, sometimes clustered together or arranged in lines. The papules vary in size from that of a millet seed to that of a pea, or larger. The smaller lesions are generally soft, while the larger ones are firmer and more prominent, standing on an inflamed base, and being painful on pressure. Besnier has applied the term *xanthôme en tumeurs* to the condition in which very large lesions are formed. Galloway<sup>2</sup> suggests that the majority of cases of the widely spread form of the disease are accompanied by

<sup>1</sup> For exhaustive discussions of the pathological nature of lymphangioma the reader is referred to A. Schmidt (*Arch. f. Derm. u. Syph.*, 1890) and L. Török (*Monats. f. prakt. Derm.*, Bd. xiv., No. 5). Full abstracts of both these papers will be found in the *Brit. Journ. Derm.*, 1892, p. 133 and p. 392 respectively.

<sup>2</sup> *Brit. Med. Journ.*, March 21, 1908.

morbid changes of metabolism, especially associated with inadequacy of the functions of the liver. In all cases of diffused xanthoma, therefore, the abdominal organs and their functions should come under close scrutiny.

The distribution and course of the lesions in different cases differ so widely that they must be treated of separately.

**Xanthoma planum** is nearly always met with in the form of plates, very rarely of nodules. Occasionally cystic spaces form within the lesions. Commencing, as a rule, in the upper eyelid near the inner canthus on one side, it soon makes its appearance on the other side, and, after extending for a time, remains stationary for the rest of the patient's life. In many cases the lower lids are affected as well as the upper, and sometimes a zone of xanthoma is formed, looking like a circle of wash-leather let into the lids. Xanthoma planum has also been met with on the ears, the nose, the mucous membrane of the mouth, the tongue, the palate, and other mucous membranes. The affection usually begins after forty; when it appears in childhood it is generally as part of a xanthoma multiplex. The affection is commoner in women than in men (in the proportion of about three to one). It seems sometimes to be hereditary, and it has been observed to skip a generation. It has frequently been noticed in connection with migraine and jaundice. The diagnosis can seldom present any difficulty, the appearance of the yellow patches embedded in the corium, and almost imperceptible to the touch, being absolutely distinctive. In severe cases excision is the only treatment.

**Xanthoma multiplex** is generally associated with jaundice, but, especially in children, it may exist independently of that condition. The form of multiple xanthoma occasionally met with in diabetes mellitus

presents clinical peculiarities which entitle it to separate consideration. In xanthoma multiplex the lesions are nearly always of the nodular form, but the plane variety is occasionally met with. The colour varies greatly; a mixture of blackish pigment with the yellow has been noticed. A case has been recorded by Köbner in which the lesions developed in capillary nævi and had a reddish hue. The eruption has been found associated with thickening of tendons (Hutchinson).

Linear grouping of lesions is often observed, especially along the lines of flexion. No part of the skin is exempt. The eruption is usually widespread, but it may be limited to one part. Although it generally starts on the eyelids, many cases are recorded in which these were spared. The condition has been noted in the mouth, pharynx, and œsophagus, the respiratory passage, the aorta, the bile-duct, peritoneum, etc. The hands and the penis are often affected, and around the anus and in the gluteal folds the lesions may be present in great numbers, and by their aggregation constitute small tumours (*xanthoma tuberosum*). Most cases are dependent on hepatic disease and are associated with jaundice, but in a considerable number there appears to be no such connection. Some cases are congenital, others begin within the first few years of life. In some of these early cases an hereditary disposition seems to have existed. The disease usually progresses for a time, and then remains stationary for the rest of life. Spontaneous involution has been known to occur, but this is rare. The distinctive feature of the lesions is that they are embedded in the corium. Dr. James C. Johnston regards the process as neoplastic and not, as in xanthoma diabetorum, inflammatory, and believes that the cells originate in the endothelium and tend to undergo granulo-fatty degeneration.<sup>1</sup> Some cases of

<sup>1</sup> See *Brit. Journ. Derm.*, June, 1905.







PLATE XLV.—XANTHOMA DIABETICORUM (DR. UNNA'S CASE).

multiple dermoid tumours of the skin have been found indistinguishable from xanthoma multiplex until microscopic examination was made. The condition has also been confounded with urticaria pigmentosa. The latter affection is characterised by itching; wheals can usually be seen at some stage in the disease, and the skin is in an urticarial state, so that factitious lesions can be induced.

The usual **treatment** is excision. Mr. Willmott Evans has, however, used the X-rays with success.

**Xanthoma of Balzer.**—This extremely rare affection is characterised by hypertrophy and deformity of the elastic tissue in limited areas of the skin. The lesions have a general similarity to those of ordinary xanthoma. They consist of slightly-raised lenticular pinkish-yellow areas, soft to the touch, and having no inflammatory zone around them. In the only case of this affection that has come under my notice the patient was a young lady, aged twenty-one. The lesions were situated on the left side of the lower part of the neck and the shoulder of the same side. They had appeared about puberty, and very slowly increased in size and numbers. On microscopic examination by Jackson Clarke the elastic fibres were found greatly thickened, fibrillated, and knobbed. There was neither inflammatory exudation nor fatty cells. In Balzer's case a slight inflammatory infiltration was present. The diagnosis can be made with certainty only by the aid of the microscope. No treatment has yet been found successful.

**Xanthoma diabeticorum** (Plate XLV.).—The special features of this variety consist in its rapid evolution, its swift and complete involution, and its association with diabetes mellitus or glycosuria. The author drew attention to these peculiarities in 1883,<sup>1</sup> in connection with the fourth case then on record. Since that time

<sup>1</sup> *Path. Soc. Trans. London.*

several other cases have been brought forward, and the affection is now everywhere recognised, though it is extremely rare. The lesions are distinguished from those of other forms of xanthoma by the presence of a raised red area around the yellow spots. This gives the eruption the superficial aspect of common acne, for which it has been mistaken, until the lesions have been punctured and proved to be solid. The spots appear first on the extensor surfaces of the limbs, next on the lower part of the back and abdomen, on the buttocks, and on the penis. They have also been met with on the palms in several cases. In only one case did they affect the eyelid. They generally disappear in a few weeks, involution sometimes being preceded by increased itching in the patches. Fresh crops may, however, continue to come out for some time. The affection is commonest in young adults, especially in those inclined to obesity. It is always associated with glycosuria, though when the patient first seeks advice no sugar may be found in the urine. Of the manner in which the diabetes produces the skin lesions nothing is at present known. In its early stage xanthoma diabetorum may for a few days simulate lichen planus or acne, but when the lesions are fully developed their xanthomatous character becomes evident.

In contrast with other forms of xanthoma, the prognosis in this is good, so far as the skin eruption is concerned. Its significance must not, however, be forgotten as an index of a grave constitutional state.

The eruption tends to subside under the influence of antiglycosuric treatment.

**Histology of Xanthoma.**—The morbid anatomy of all forms of xanthoma, with the exception of xanthoma elasticum of Balzer, already described, is essentially the same. It will be convenient to describe it under

one heading. The process consists in the accumulation of large, often multinuclear cells, of connective-tissue type, filled with fat drops. In addition to this there is a formation of new and a destruction of pre-existing fibrous tissue. The view of Chambard is that now generally received: namely, that the affection is essentially of inflammatory nature, and that the xanthoma cells (which are practically the same as the cells met with in atheroma of arteries) are developed partly from leucocytes, partly from connective-tissue corpuscles. Krzyształowicz,<sup>1</sup> from a histological study of a case, specially insists on the hypertrophied connective-tissue cells with which the collagen and the fat lying in and between them build up the papule. The so-called xanthoma cells are, he says, merely the greatly enlarged ordinary connective-tissue cells filled with fat. My own observations, made in conjunction with G. C. Henderson and Jackson Clarke, on xanthoma diabeticorum, point distinctly to the process being of inflammatory nature. The elastic fibres remain unaffected.<sup>2</sup>

**Rhinoscleroma** is a new growth, allied to the granulation tumours, which commences in the nostrils and the skin around them. The initial lesions are nodules in the cutis, and deeper layers of the mucous membrane, which coalesce to form a hard growth with smooth glistening surface, which spreads inwards from the lip and downwards to the pharynx from the posterior nares. On the mucous membrane the appear-

<sup>1</sup> *Monats. f. prakt. Derm.*, xxiv., Sept., 1899 (abstr. in *Brit. Journ. Derm.*, 1899, p. 413).

<sup>2</sup> A summary of all the cases recorded up to that date, and a complete account of a second one observed by myself, with the results of a histological examination by Jackson Clarke and a discussion of the whole subject, will be found in the *Brit. Journ. Derm.*, August, 1892. For a good statement of later views on xanthoma diabeticorum, see Norman Walker, *Brit. Journ. Derm.*, vol. ix., p. 461, 1897.

ance is as if the parts had been infiltrated with glue, which had set to the solidity of stone. When the growth is situated in the skin the epidermis is tense and often cracked, especially about the corners of the nostrils and mouth; from the cracks a glutinous discharge



Fig 17 —Rhinoscleroma.

(From specimen No. 1615 in the museum of the Hôpital St. Louis, Paris.)

exudes, which dries into yellow scabs. In a singular case described by Schridde,<sup>1</sup> the nasal lesions, instead of being hard, were soft and ulcerated. Similar cases have been reported by Paltauf and Juffinger. The growth is not painful, but aches on pressure. It causes great deformity (Fig. 17), but no symptoms except those due to nasal obstruction; the danger to life is mechani-

<sup>1</sup> *Arch. f. Derm. u. Syph.*, Jan., 1905, p. 107.

cal, from blockage of the larynx. The growth has also been known to perforate the skull and extend into the brain (Kaposi). It does not break down spontaneously, but is generally slowly but surely progressive. The disease may last fifteen or twenty years, or even longer. Spontaneous disappearance after acute fevers has been recorded.

The condition is very rare, and, as far as may be judged from the majority of cases hitherto recorded, is chiefly prevalent in Austria. Keegan<sup>1</sup> has reported four cases of rhinoscleroma in Hindoos. The sexes are equally liable, and, as far as can be judged from the limited statistics at present available, the disease develops before the age of forty. Bacilli closely resembling Friedländer's pneumococcus, but distinct from it, have been found by Frisch, Cornil, and others. Some investigators, including Unna, are inclined to think that the growth is an inflammatory product, arising from blocking of the lymphatics by bacilli.

The **treatment** can only be palliative. The growth recurs almost immediately after removal or destruction. All that can be done is to keep the air passages patent as far as possible, and maintain the patient's strength if necessary. *Salicylic acid* injected into the growth and applied to its surface in various ways has been found useful by Lang in diminishing the bulk of the tumour in one case.

**Molluscum contagiosum** is characterised by the formation of small growths like tiny mother-of-pearl shirt-buttons (Hutchinson). They are roundish in shape and generally flattened on the top, where there is usually a depression, in which there is a small aperture leading into the interior of the tumour. Through this hole a whitish material, or sometimes a milky fluid, can be squeezed out. The little growths are firm in consist-

<sup>1</sup> *Indian Med. Gazette*, January, 1889.



ence. At first they are sessile, but as they develop they not unfrequently acquire a pedicle. They are most commonly seen on the face, the eyelids being a favourite situation. They are also met with on the neck, the breast, the limbs, the genitals, and about the anus. They are never seen on the palms or soles. They are generally multiple, sometimes very numerous, and widely distributed. After attaining a certain size they may remain stationary for an indefinite time. They often undergo involution or drop off owing to strangulation of the pedicle. Sometimes they become inflamed and are destroyed by suppuration.

*Molluscum contagiosum* is most common in the young, and poverty seems to be a predisposing condition. The disease is generally believed in England to be contagious, and many cases are on record in which several members of the same family suffered from it at the same time. Successful experimental inoculations have been made by Vidal and by Pick.<sup>1</sup> It is clear, however, that the contagion is operative only under certain exceptional conditions, about which nothing is definitely known. The disease has been known to develop after the use of Turkish baths, probably as the result of infection. Some years ago at least half-a-dozen cases came under my care within a very short time of each other, in all of which the disease appeared to have followed a visit to the same Turkish bath. Pick concluded from his experiments that there is a period of incubation lasting two months, and that the inoculated disease requires from three to four months for its complete evolution. In structure (Plate XLVI.) *molluscum contagiosum* resembles a racemose gland, and many authorities believe it to be merely an enlarged and altered sebaceous gland. This view finds some support in the fact that the growth never occurs in the

<sup>1</sup> *Brit. Journ. Derm.*, 1892, p. 234.

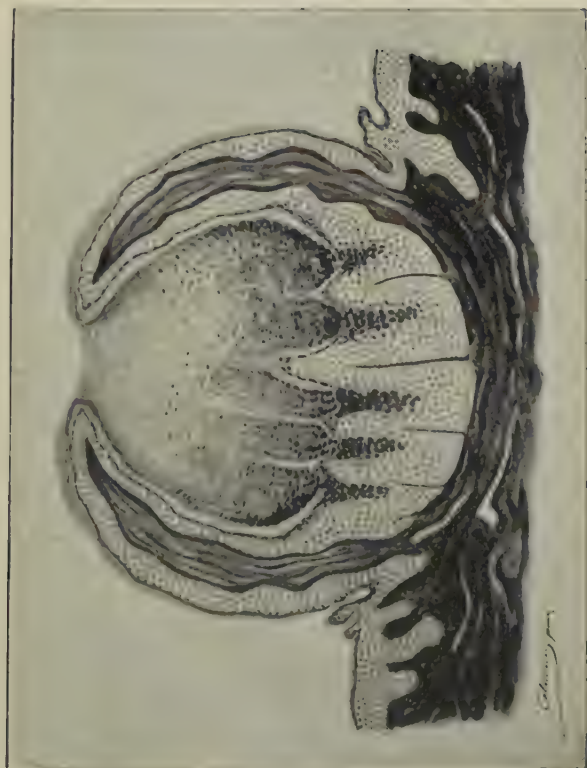


PLATE XLVI MICROSCOPIC SECTION OF MOLLUSCUM CONTAGIOSUM



palms and soles, where no sebaceous glands exist. Virchow, however, believed that the hair follicle is the starting-point of the process. His observations have been confirmed by Thin, Crocker, and others. Psorosperms, developing in the epithelial cells, were considered by Neisser and Mansuroff to be the real etiological factors in the process, and a micrococcus has been found by Shaw.<sup>1</sup> The researches of C. J. White and Wm. H. Robey, jun., under the direction of the Cancer Commission, have led them to the conclusion that the lesion in molluscum contagiosum is not due to the action of a protozoon, and is not analogous to cancer.<sup>2</sup>

The appearance of the little pearly growths, with the central depression and the hole leading into the substance of the tumour, is characteristic. Sometimes when they are very small they resemble vesicles, and might suggest varicella. The microscopic examination of the contents will show the nature of the affection. A small tumour on the genitals has been mistaken for a hard chancre, but the presence of similar growths elsewhere and the other clinical aspects of the case will generally prevent such an error.

Molluscum contagiosum sometimes disappears spontaneously. Touching with *pure liquid carbolic acid*, followed by brushing with *flexible collodion*, will often get rid of the tumours. When this fails they should be split from below upwards and squeezed out, or they may be cut off.

**Colloid milium** is a rare condition, characterised by small yellow translucent, cyst-like formations in the skin, chiefly on the upper part of the face. They do not contain fluid, but a gelatinous material. Sometimes they become depressed in the centre and are slowly

<sup>1</sup> *Amer. Journ. of Cut. and Gen.-Urin. Dis.*, vol. x., 1892.

<sup>2</sup> *Journ. Med. Research*, April, 1902.

absorbed; sometimes they become inflamed and afterwards dry up. The affection occurs in both sexes, and does not generally begin before puberty. The condition appears to be one of colloid degeneration of the skin. Spontaneous recovery has been known to occur, but the condition is refractory to treatment. *Erasion* with the sharp spoon, or *electrolysis*, might be tried.<sup>1</sup>

**Epithelioma adenoides cysticum.**—This growth was first described by Jacquet and Darier in 1887,<sup>2</sup> under the name of *hydradénome éruptif*, and since then by Török, Perry, Quinquaud, Philippson, Besnier, For- dyce, W. Pick, and others, each writer seeming to make it a point of honour to invent a new name for the tumour. The simplest of these names is *benign cystic epithelioma*, employed by Dr. Hartzell.<sup>3</sup> The one used here was proposed by Brooke,<sup>4</sup> who made a most painstaking investigation of the disease.

The following brief description is mainly condensed from Brooke's. The lesions are small tumours, at first of the same colour as the surrounding skin, which afterwards, as they increase in size, become shining and translucent, but hardly sufficiently so to suggest that they contain fluid. Nearly all contain one or more minute white, brightly refracting, milium-like bodies. The little growths are firm, but not hard, and can be felt to be embedded in the skin. In the four cases observed by Brooke the most common sites of the growths were the space between the eyebrows, the root of the

<sup>1</sup> The affection was first described by Wagner, *Arch. d. Heilk.*, Bd. vii., 1866. The pathology of the condition has been discussed by L. Philippson, *Brit. Journ. Derm.*, vol. iii., 1891; and by Besnier, French translation of Kaposi, vol. ii., p. 370. See also a paper by C. J. White in the *Journ. Cut. and Gen.-Urin. Dis.*, vol. xx., Feb., 1902.

<sup>2</sup> *Ann. de Derm. et de Syph.*

<sup>3</sup> *Brit. Journ. Derm.*, Oct. 1904, p. 361.

<sup>4</sup> *Brit. Journ. Derm.*, 1892, p. 269.

nose, the nostrils, the cheeks, the upper lip, and to a less extent the chin. In these situations they were so thickly clustered together as to form disfiguring lumpy patches. The growths may occur on any part of the body from the occiput to the pelvis, and on the arms and legs. The course of the affection is very slow, subject, however, to sudden acceleration, even after it has lasted many years. It begins, as a rule, between the tenth and fourteenth years.

Heredity appears to play some part in its causation, three of Brooke's cases having occurred in members of the same family (mother and two daughters), and two cases recorded by Fordyce<sup>1</sup> having been in a mother and daughter respectively.

The lesions never attain any great size, and may remain unchanged for years. They are painless, and the only symptom to which they give rise is slight pricking or itching. They show no tendency to ulceration.

Clinically the growths seem to be absolutely benign, but histologically they are epitheliomata in the wider sense of that term, denoting only a tumour composed of epithelial elements and not necessarily malignant. Microscopically the growths, according to Brooke, consist of finger-like prolongations of epithelium coiled on themselves so as to form masses, in which are cysts filled either with purely colloid material or with concentric layers of flattened horny cells round a colloid centre. Some believe that the growth has its starting-point in the sweat-glands, but Brooke holds that it originates directly from the epidermis and from the epithelium of the hair sacs. In a case described by W. Pick<sup>2</sup> there

<sup>1</sup> *Journ. of Cut. and Gen.-Urin. Dis.*, December, 1892. The paper is illustrated with an excellent coloured plate and numerous microscopical sections.

<sup>2</sup> *Arch. f. Derm. u. Syph.*, Oct.-Nov., 1901, p. 201.

was marked proliferation of the epithelium at the periphery of the sebaceous acini. The new cells are probably of embryonic origin.

The only **treatment** is removal by *excision* or destruction with the *cautery*. Healing takes place readily. Fordyce succeeded in removing most of the larger tumours by means of the dermal curette, some of the smaller ones being expressed with a comedo extractor.

**Keratosi follicularis** (Plate XLVII).—Keratosi follicularis is a rare disease, formerly termed by E. Wilson "ichthyosis sebacea cornea." The subject has been carefully studied by Darier,<sup>1</sup> from whose work the following account is chiefly derived. It was independently described simultaneously by J. C. White of Boston, and Darier applied the term "follicular vegetating psorospermosis" (*psorospermoze folliculaire végétante*) to the process. It usually begins in early life, and is more often met with in males than in females. The lesions first appear as small brown or yellow crusts, which are removable after maceration, but readily form again. The crusts project sometimes as much as 3 to 4 mm. above the surface. They are hard, dry, and adhere firmly to the underlying tissue. When detached, as they may be by squeezing with the fingers, they are found to present on their under surface a softish prolongation which dips into a follicle. This soft part can be squeezed out by pressing with the finger-nails. The lips of the depression are slightly everted, and are redder and firmer than normal. The lesions are at first discrete, but may become confluent by extension, and the thickening of the affected parts increases so that nodular masses are formed, from which oozes an offensive discharge.

The eruption in Darier's first case (a woman aged thirty) began on the epigastrium and on the flanks, and

<sup>1</sup> *Ann. de Derm. et de Syph.*, No. 7, July 25, 1890.





PLATE XLVII KERATOSIS FOLLICULARIS.



rapidly spread to the sternal region, the face, and the scalp. Finally the whole of the trunk was affected, and also the limbs to a slight extent. In certain parts—*e.g.* the scalp, temples, naso-labial furrows, axillæ, groins, and anal cleft—the lesions were confluent three years after the commencement of the disease. In a second case recorded by the same author the eruption began over the sternum when the patient (a man) was thirty-eight. Seven years later the scalp was covered with yellowish-brown crusts, covering pits from which tufts of hair projected. The face, except the eyelids and the circumference of the orbits, was covered with papules, which were confluent at the roots of the hair of the eyebrows and around the mouth. The shoulders and the neck were moderately affected. The middle of the back part was covered with a mass of lesions resembling large comedones. A similar condition existed on the sternum and epigastrium. On the hypogastrium, about the pubes, and in the groins the lesions constituted large hemispherical bosses, with a central pit, from which stinking puriform matter escaped. There were many lesions on the outer and posterior aspects of the forearms, and some in front of the anus. The inner surfaces of the thighs and legs were slightly affected. The palms and soles were studded with yellow dots from thickening of the horny layer.

In all the cases hitherto recorded the affection has been slowly progressive. Fresh areas may become rapidly covered with papules. In ten of the twelve cases the patients were males. The affection does not seem to react to any marked extent on the general health.

The lesions sometimes, but not invariably, implicate the hair follicle, the outer part of which is dilated. The granular layer of the epidermis is slightly, the mucous layer greatly, thickened, and its interpapillary processes

are enlarged. Some of the cells of these layers contain "round bodies" about as large as the epithelial cells themselves, and presenting a granular protoplasm and a nucleus with a doubly contoured nuclear membrane. The sebum-like plug which fills the depression contains numerous round or oval highly refracting "grains," in which a trace of a nucleus can sometimes be made out. Darier regarded the "round bodies" and "grains" as psorosperms, which he believed to be the cause of the disease, and this view received the support of Malassez, Balbiani, and some subsequent observers, but Darier afterwards recognised that the "corps ronds" were simply due to cornification of an anomalous type. Török and Tommasoli, on account of the resistance of these bodies to mineral acids and alkalies, had regarded them as products of degeneration, and Unna believes them to be largely the result of hyalin degeneration. Kreibich suggests that possibly the affection is angio-neurotic in origin. Audrey and Dalous<sup>1</sup> hold the disease to be an expression of dystrophy of the whole epidermis, due to a congenital force which remains latent until liberated by conditions as yet unknown. In a case reported by Ormerod and MacLeod,<sup>2</sup> and in others, the initial lesion occurred independently of the follicles, contrary to Darier's original view that the primary seat of the initial lesions was the funnel or upper third of the pilo-sebaceous follicle.

Bowen<sup>3</sup> is inclined to adhere to the view originally enunciated by J. C. White, that the process is essentially a keratosis of the mouths of the follicles. MacLeod<sup>4</sup> regards the eruption as "a type of dyskeratosis associated with a peculiar cellular degeneration, which may

<sup>1</sup> *Journ. des Mal. Cut. et Syph.*, vol. xvi.

<sup>2</sup> *Brit. Journ. Derm.*, Sept., 1904, p. 321.

<sup>3</sup> *Journ. of Cut. and Gen.-Urin. Dis.*, June, 1896.

<sup>4</sup> *Loc. cit.*



PLATE XLVIII.—ACANTHOSIS NIGRICANS.



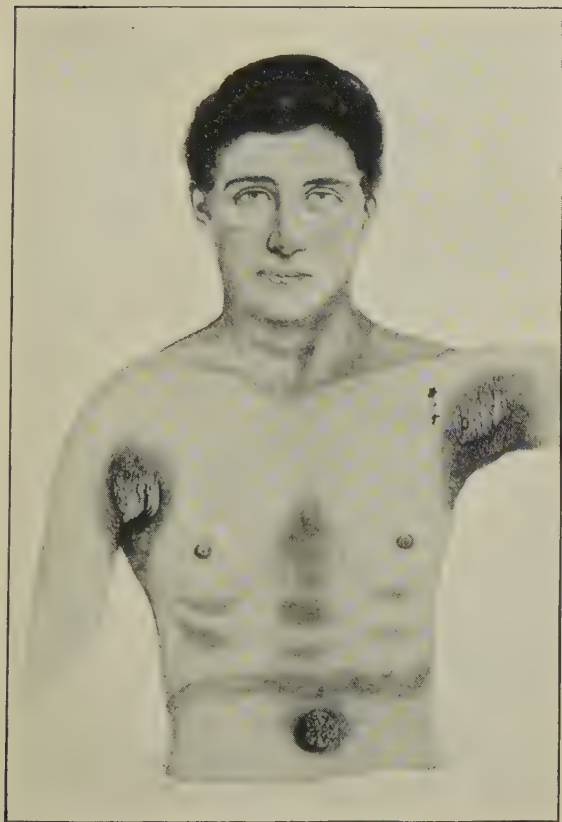


PLATE XLIX.—ACANTHOSIS NIGRICANS.





affect any portion of the epidermis, and is frequently located at the upper third of the pilo-sebaceous follicle or the openings of the sweat-ducts." The name given to the affection by Darier is, as he points out, a most unfortunate one, since it is not essentially follicular, and is only vegetating in severe cases and in a late stage. "Keratosis follicularis" is not more appropriate, since the disease is not an ordinary keratosis and may not be follicular.

The only **treatment** which offers any chance of success is that proposed by Schwimmer—viz. to destroy the lesions as they appear with the *thermocautery*. A case described by Bukovsky showed some improvement under treatment by arsenic, but recovery was incomplete. Palliative measures are the application of salicylic and sulphur ointments, and the thorough cleansing of the offensive discharge by mild antiseptic lotions, dusting powders, or baths.

**Acanthosis nigricans** (Plates XLVIII., XLIX.) is a peculiar pigmentation of the skin with warty growths, described by Pollitzer and others. In the few cases on record the pigmentation has occurred more or less suddenly, the face, neck, axillæ, upper limbs, groins, abdomen, thighs, and genital regions being the parts affected. The mucous membrane of the mouth also suffers. The discoloration varies from yellowish-brown almost to black. The affected skin is thickened, the natural lines of cleavage being deeper than normal, and in some parts it is covered with small papillary growths. In Pollitzer's case the skin lesions disappeared after a time, but the patient died later from what was supposed to be internal cancer. In a case under my own care a similar sequence of events probably occurred.<sup>1</sup> Hodara<sup>2</sup> reports a case in which acanthosis nigricans followed

<sup>1</sup> *Med.-Chir. Trans.*, vol. lxxvii.

<sup>2</sup> *Monats. f. prakt. Derm.*, June 15, 1905, p. 629.

cancer of the breast, appearing two months after the beginning of the cancerous growth. After the removal of the breast the pigmentation almost disappeared, but there was recrudescence with considerable extension six months later. The scars on the site of the breast were smooth and white in the middle of the acanthotic area. Darier<sup>1</sup> has reported two cases of acanthosis nigricans, and proposes the name of *dystrophie papillaire et pigmentaire* for the disease. A case similar to those of Darier has been described by Pawloff.<sup>2</sup> The patient was anæmic and emaciated, and complained of pain on deep pressure over the epigastrium, but there was no certain proof of visceral cancer. In a case reported by G. Hügel the disease began at the age of three, and the patient, a man aged twenty-five, showed no sign of visceral disease.

**Lentigo** is the familiar condition known as "freckles," or small pigmented spots, the colour of which is usually yellow or yellowish brown, occasionally sepia. Their most common situations are the face, especially about the nose and cheeks, and the backs of the hands. Sometimes they are seen on covered parts, such as the arms, the back, the buttocks, etc. Generally the number of them is moderate, and they are small and light in tint; occasionally the face is so thickly covered with them, and they are so large and dark, as to constitute a disfigurement. Freckles are sometimes congenital, but generally first appear in childhood about the age of ten. A fair, delicate skin is a predisposing condition. The exciting cause is sunlight; hence they are always most marked in summer, and fade more or less in winter. The affection tends to disappear as age advances. In rare cases freckles develop in adult life and in old age, particularly on

<sup>1</sup> *Ann. de Derm. et de Syph.*, t. vi.

<sup>2</sup> *Montas. f. prakt. Derm.*, June 15, 1905, p. 629.



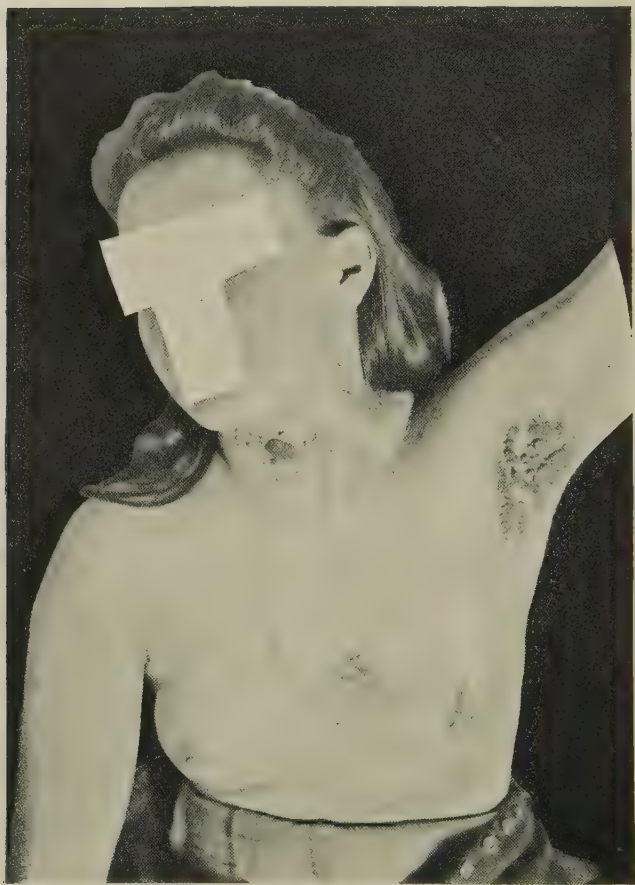


PLATE L.—VERRUCA LINEARE UNILATERALIS.

covered parts; in such circumstances the condition is probably connected with impairment of nutrition or senile atrophy. Pathologically freckles are patches formed by the localised deposit of pigment in the basal layer of the epidermis. If **treatment** be considered necessary the indication is to remove the patches by inducing localised blistering or desquamation. The best remedy is a solution of *perchloride of mercury*, two or three grains to the ounce, applied several times a day. *Pure carbolic acid* applied with a match to each spot separately, and *salicylic acid* used in the form of Unna's plaster mull, are also useful. In most cases, however, the cure is merely temporary. In view of the serious constitutional results that may possibly follow the unrestrained use of corrosive sublimate, it should be employed only under medical supervision, and patients should be warned to have nothing to do with advertised nostrums.

**Papilloma** of the skin includes various conditions characterised by the formation of papillary growths. These may be of syphilitic, tuberculous, cancerous, or inflammatory nature (as in sycosis, eczema, etc.), and as such they are treated of in connection with the process of which they are the result. In this section only innocent papillary growths arising independently of any general process—warts, corns, and horny formations—are considered. Such growths are often, in Continental dermatological literature, designated *nævi*, a term which is used in this volume in a much more limited sense.<sup>1</sup> Sometimes the distribution of the growths is linear and unilateral, as in the case of Dale James's figured in Plate L.

**Warts** are of several kinds, the differences being in their shape, general appearance, and situation; structurally they are all essentially the same. The common

<sup>1</sup> See *ante*, p. 594.

wart (*verruca vulgaris*) is generally seen on the hands, but also on other parts, as a small sessile growth with a surface at first smooth, afterwards roughened with enlarged papillæ, which can sometimes be seen projecting like coarse bristles; occasionally the little mass is fissured here and there to its base. The colour is at first that of the skin, but after a time, owing to changes in the keratin, and in uncleanly persons to griming with dirt, it becomes brown or even black. They may be single or multiple; sometimes they are seen clustered together on the fingers. The condition is most common in childhood, and tends to disappear with the advent of puberty. It may, however, persist much longer, and may even be developed in adult life. Warts give rise to no symptoms, unless they are of such a size or in such a situation as to interfere with the holding of a pen, etc.

Flat wart (*verruca plana*) may occur in youth, but is generally seen in old age. In young persons such warts are most common on the face (particularly the forehead) and on the backs of the hands; in the elderly the back and the arms are the ordinary situations. The warts are, as the distinguishing epithet implies, flat; they are smoother, as a rule, than the common wart, and often square in outline, resembling the papules of lichen ruber planus. The changes found on examination are hypertrophy of all the layers of the epidermis, with elongation of the papillæ. In old people the warts are often large and prominent, dark in colour, and associated with other senile changes in the skin. They are generally situated on the back, the forearms, and the face. They often itch intensely. Such a wart may form the starting point of a malignant growth.

Another form of wart is characterised by raggedness of surface, the overgrown papillæ being separated and forming finger-like processes; hence this kind of wart



is known as *verruca digitata*. They are most common on the scalp, especially in women. They sometimes cause inconvenience in dressing the hair.

A long thread-like wart (*verruca filiformis*) is sometimes seen on the neck and the eyelids.

**Verruca seborrhœica** (seborrhœic wart) occurs sometimes in young persons, but generally in old age. It is sometimes referred to under the name of senile warts, an obviously inappropriate designation, for not only is it not confined to the aged, but the growth is a condition of acanthosis rather than a true wart. L. Waelsch, therefore suggests that it be called *acanthosis verrucosa seborrhœica*. The lesions consist of multiple patches of pseudo-warty growth on the back, arms, belly, sternum, and neck; the face is sometimes, though rarely, attacked. The lesions are generally more or less grouped in lines following the natural lines of cleavage in the skin. The patches are generally rounded in outline, and usually present varying degrees of pigmentation, from brown to black. In connection with this point it is necessary, as pointed out by Pollitzer,<sup>1</sup> to distinguish between the growth itself and the crust with which it is covered. It is to the latter that the colour is due, and it is obvious that the depth of tone must depend on the amount of dirt accumulated on the surface of the lesion. In cleanly persons the patches are of a pale fawn tint, and the surface, which is soft and greasy to the touch, has a reticulated appearance. In those who wash seldom and imperfectly the warts are covered with a dark crust of dirt which can be scraped off with a knife; a pinkish-yellow reticulated surface will then come into view. The only symptom to which the warts give rise is itching, which, especially in elderly persons, may be very troublesome. According to Pollitzer, the histological characters of the growth are

<sup>1</sup> *Brit. Journ. Derm.*, vol. ii., 1890, p. 200.

slight thickening of the horny layer, with considerable hypertrophy of the Malpighian layer, while in the papillary and subpapillary layers there are epithelioid cells in groups and lines separated by bundles of connective tissue, with a peculiar infiltration of fat, affecting the coil-gland epithelium, the middle and papillary layers of the cutis and the epithelium of the rete, and perhaps some atrophy of the sebaceous glands and hair follicles. He looks upon these warts as benign growths developed out of "misplaced" embryonic cells, resembling in respect of the presence and peculiar arrangement of the epithelioid cells the growth called by Von Recklinghausen "lymphangio-fibroma." The fatty infiltration in the skin may perhaps be regarded as evidence of a seborrhœic process, if Unna's view that the coil-gland glomerulus not only secretes sweat, but is the chief source of fat for the skin, be accepted. Poór<sup>1</sup> holds that senile warts are due simply to failure of the sebaceous glands to extrude their secretion, while the openings are blocked by the abnormal cornification typical of senility, cystic degeneration thus being set up.

If treatment be considered necessary the growths may be dealt with in the same way as ordinary warts.

**Venereal warts** (*verrucae acuminatae*) are papillary excrescences usually seen about the genitals in both sexes, and sometimes in the axillæ and other moist, warm parts. They are generally reddish in colour, pointed, tufted, or cauliflower in shape, bathed in decomposed sweat and purulent discharge; sometimes, especially about the vulva, they grow with an unrestrained luxuriance suggestive of tropical vegetation. These warts are not syphilitic, but they are most frequently gonorrhœal in origin, proliferation of the

<sup>1</sup> *Derm. Zeitsch.*, Bd. x., p. 462.

papillæ being due to the irritation of the discharge. Somewhat similar warts are sometimes seen in pregnant women who have not suffered from gonorrhœa. In such cases the warts quickly disappear after delivery, but the gonorrhœal warts show little tendency to do so, and may continue to grow for years. They are highly contagious.

Except as regards the form last mentioned, the **etiology** of warts is obscure. The flat wart, as has been said, is sometimes a result of senile degeneration of the skin; and Jamieson says he has in some cases traced the origin of the digitate wart to the use of rancid hair-oil or pomade.<sup>1</sup> The popular notion that the common wart is inoculable finds some support in facts observed by Payne<sup>2</sup> and others; and cocci and bacilli have been found in the little growths by Cornil, Kühnemann, and others, but the significance of these micro-organisms is doubtful. Arthur Hall<sup>3</sup> regards the sudden disappearance, under the administration of drugs so different as magnesium sulphate, nitro-hydrochloric acid, liquor arsenicalis, thyroid extract and tuberculin, of persistent warts as pointing to their being of parasitic origin, and due to a micro-organism of low vitality. In a later paper<sup>4</sup> he reports a case in which warts of several years' standing disappeared when the patient's costiveness was corrected and free action of the bowels set up. Chalmers Watson, too, had a case, that of a boy of thirteen, in which verrucæ planæ on the face and hands disappeared and verruca vulgaris of the hands improved on the administration of large doses of castor-oil, a result which suggested to him that in some cases a chronic infection

<sup>1</sup> "Diseases of the Skin," 1888, p. 375.

<sup>2</sup> *Brit. Journ. Derm.*, 1891, p. 185.

<sup>3</sup> *Brit. Journ. Derm.*, July, 1904, p. 177.

<sup>4</sup> *Ibid.*, March, 1906, p. 107.

from the alimentary tract is an important etiological factor.<sup>1</sup>

**Treatment.**—Ordinary warts may be successfully dealt with by causing exfoliation by means of *salicylic acid* in the form of a plaster, or dissolved in *collodion* (3j ad 3j), and then applying *chromic acid* to the base of the growth. If this fails, a strong caustic, such as *acid nitrate of mercury*, should be used, with precautions to limit the range of its destructive action. A good method is to moisten the wart with strong acetic acid, and when damp to apply the solid stick of nitrate of silver. I have seen warts completely disappear under X-ray treatment, but in some cases there has been recurrence.

Digitate warts should be removed with the elastic ligature or the knife, the base being afterwards cauterised. Larger growths may require the galvanic cautery loop or the *écraseur*. Gonorrhœal warts, if very luxuriant, should be snipped off with scissors or destroyed with the galvano-cautery; if they are small they may be got rid of by applying *chromic* or *glacial acetic acid*. An important element in the treatment of these moist warts is to keep them dry and clean, and the surrounding parts protected from infection. The conditions (irritating discharge, etc.) keeping up the papillary hypertrophy must also be dealt with.

**Verruca Peruviana.**—In certain elevated valleys of Peru there occurs an affection known as *verruca Peruviana* and sometimes as *verrucome de Carrion*, after the student who lost his life in an experiment that proved the acute febrile and the eruptive chronic types to be identical. In some cases the disease ends, either fatally or by recovery, with the febrile stage; in others the fever is followed by the appearance of numerous small elevations, usually on

<sup>1</sup> *Brit. Journ. Derm.*, May, 1903, p. 178.

the extensor surfaces of the limbs. The verruca may be of a miliary kind—when the eruption resembles small ripe cherries—or larger, and both kinds may occur in the same case, and simultaneously. When the eruption appears the fever may diminish; if it persist, the prognosis is unfavourable. Escomel<sup>1</sup> believes the disease to be caused by long, thin, straight bacilli, which he found in sections examined by him: The treatment is the same as for yaws,<sup>2</sup> to which the affection offers much clinical resemblance.

**Corns** are circumscribed thickenings of the epidermis, in the centre of which a horny peg or nail (hence the name *clavus*) projects downwards among the papillæ so that its point rests on the sensitive cutis, causing sharp pain when driven inwards by pressure. Corns also “shoot” spontaneously, especially under the influence of barometric depression. The most common situations for corns are the outer surfaces of the little toes, the upper surfaces of the other toes, and the sole, especially the part where the weight of the body falls in walking. A softer but not less painful kind of corn often forms between the toes. Pressure and friction are the causes chiefly responsible for corns, but some persons show a much greater proclivity than others to their production. They may be congenital, or at any rate may develop in early childhood on feet that have never been imprisoned in tight or ill-fitting boots. Anatomically, the condition is hyperplasia of the horny layers. Corns sometimes become inflamed, and suppurate and break down into deep ulcers. The **treatment** consists in removing the corn by the application of *salicylic acid* in a plaster, or in the following form :—

<sup>1</sup> *Ann. de Derm. et de Syph.*, Nov., 1902, p. 961 (abstr. in *Brit. Journ. Derm.*).

<sup>2</sup> See *ante*, p. 535.

Acidi salicylici ..	..	..	..	..	5j
Extr. cannabis indicæ	..	..	..	..	gr. v
Collodion	..	..	..	..	3j

This should be painted on with a camel-hair brush or a glass rod after the corn has been soaked in hot water and the top shaved off. After a day or two the thickened epidermis can easily be picked off. A somewhat similar formula is that suggested by Vigier :—

Acidi salicylici ..	..	..	..	..	gr. xv
Extr. cannabis indicæ	..	..	..	..	gr. viii
Alcohol ..	..	..	..	..	℥ xv
Æther ..	..	..	..	..	℥ xl
Collod. flex.	..	..	..	..	℥ lxxv

A method which I have found most successful is to soak the corn with *acetic acid* and then rub it thoroughly with *nitrate of silver*. Cutting corns is not more effectual than the methods described, and has sometimes been followed, especially when performed by unqualified “chiropodists,” by serious and even fatal complications. After treatment the part should be protected from pressure by perforated pads of felt plaster or amadou, and boots adapted to the shape of the foot should be worn.

**Callosities** differ from corns chiefly in the absence of the “nail.” The thickening of the epidermis may be congenital, but is usually acquired. It occurs on parts exposed to pressure, as on the hands of working men, the fingers of harpists, etc. Callosities may also develop on the feet from the pressure of boots or from going barefoot. The condition seldom calls for treatment, but if any is required the hypertrophied horny layer can be got rid of by means of *salicylic acid plaster*.

**Horny excrescences**, resembling the horns of animals, have in rare cases been observed in human

beings ; they sprout generally from the scalp, the forehead, the temples, sometimes from the face, the extremities, the genitals, and the trunk. They are not painful, except when injured ; occasionally they are the starting-point of malignant disease. They are rare under the age of forty, but have been observed in children. They are essentially overgrown warts (Crocker). In most cases they originate in sebaceous cysts ; sometimes they arise in warts or scars, or in a broken-down molluscous tumour of the eyelids (Jamieson). The horn should be removed and the base thoroughly cauterised.



## CHAPTER XXIV

### NEW GROWTHS — (*concluded*)

#### II.—MALIGNANT

THE essential feature of a malignant growth is that in its extension it does not thrust aside the structures in which it grows, but destroys them and takes their place. A tumour may be locally malignant; that is, it may spread indefinitely from a given centre and recur after removal, not, however, becoming generalised in the system; or it may be malignant in the full sense of the word, not only invading the surrounding parts, but giving rise to secondary formations in distant regions. Thus sarcoma is often only locally malignant, while carcinoma is typically malignant. The group of malignant growths affecting the skin includes Paget's disease, carcinoma, sarcoma (of various types), epithelioma, mycosis fungoides, and xeroderma pigmentosum.

**Paget's disease.**—This affection, the individuality of which was established by Paget<sup>1</sup> in a paper based on the study of fifteen cases, has since that time been the subject of many memoirs, one of the most important being that of Wickham.<sup>2</sup> It occurs chiefly in women after the age of forty. The first visible lesion is reddening of a patch of skin on or around the nipple, which has the appearance of an inflammatory hyperæmia,

<sup>1</sup> *St. Bartholomew's Hosp. Reports*, 1874, p. 83 *et seq.*

<sup>2</sup> "Contribution à l'étude des psorospermes cutanées et de certaines formes de cancer," Paris, 1890.

followed by branny desquamation. The infiltration soon deepens, producing a bright red granular, distinctly indurated surface, from which there usually oozes a sticky yellowish discharge. This may form crusts and obscure the nature of the lesions, save at the border, which is characteristic, being sharply defined, indurated, and sometimes distinctly raised. In the later stages of the disease itching and burning are the chief subjective symptoms. The process usually commences in the nipple and areola, but undoubted instances have been recorded of its attacking the scrotum,<sup>1</sup> the scrotum and thigh, the penis,<sup>2</sup> the glans, the anus and perineum, the abdominal wall, the axilla,<sup>3</sup> the umbilicus,<sup>4</sup> and other parts.<sup>5</sup> Dubreuilh<sup>6</sup> has recorded a case in which the vulva was the seat of the disease. After a period, which is usually about two, but has been known to be extended to thirty, years, deep-seated parts may become affected by the cancerous process. On the breast this shows itself by retraction and induration of the nipple, and the formation of a tumour in the substance of the gland. The histological changes consist in great proliferation of the deeper layers of the epidermis and inflammatory infiltration of the corium. In the thickened epidermis the bodies described as psorosperms by Darier, Wickham, and Jonathan Hutchinson, junr., abound. Most English writers have looked upon the cancerous disease in which the affection terminates as having no closer connection with the original malady than as being the effect of prolonged irritation; Thiu,

<sup>1</sup> Crocker, *Path. Soc. Trans.*, vol. xl., 1889.

<sup>2</sup> Pick, *Deutsch. med. Zeit.*, November 5, 1891.

<sup>3</sup> Jungmann and Pollitzer, *Derm. Zeitschr.*, Bd. xi., Hft. 6.

<sup>4</sup> *Brit. Journ. Derm.*, vol. xvi., Feb., 1904.

<sup>5</sup> See a case reported by Marmaduke Sheild, *Brit. Journ. Derm.*, vol. ix., 1897.

<sup>6</sup> *Brit. Journ. Derm.*, November, 1901.

however, regards the affection as cancerous throughout, and has suggested the name "malignant papillary dermatitis." Wickham attributes both the affection of the skin and the cancer in which it terminates to psorospermial infection. Fabry and Trautmann<sup>1</sup> isolated from the skin, in one of their patients, a vegetable fungus of the yeast variety, which they held to be the cause of the disease and not a secondary infection. It readily grew on cultivation media and was pathogenic to white mice. But, as MacLeod remarks in his abstract of the paper, a fungus so readily isolated could scarcely have been overlooked in other cases had it been present. In describing a case of Paget's disease of the umbilicus in a seafaring man of sixty-five, Colcott Fox and MacLeod,<sup>2</sup> while stating that the rounded bodies which Darier and Wickham took for coccidia were simply degenerated cells, and expressing the opinion that the original lesions were not malignant, admit that as to the cause of the pre-cancerous dermatitis and the subsequent carcinoma we are as much in the dark as when Paget defined the disease. In the course of their paper the literature of the subject is carefully reviewed.

As regards **diagnosis**, the bright red granular surface exposed after removal of crusts, the induration especially marked at the well-defined edge, with the intractable nature of the affection, distinguish it from chronic eczema, which it most closely resembles. The diagnosis is made certain by the microscopic examination of scrapings in iodised serum (Darier) or liquor potassæ (Hutchinson, junr.). The bright oval nucleated bodies appear, some still contained within the host cells, others surrounded by distinct capsules. The course of the disease is steadily progressive, and if left untreated it terminates in death.

<sup>1</sup> *Arch. f. Derm. u. Syph.*, March, 1904, p. 37.

<sup>2</sup> *Brit. Journ. Derm.*, vol. xvi., 1904, p. 41.





PLATE LI.—CANCER "EN CUIRASSE."

The **treatment** should consist of complete removal of the whole breast or part affected as soon as the diagnosis is established. Cures by radiotherapy have been reported, but the results on the whole have not been such as to justify the neglect or postponement of amputation.

**Cancer of the skin.**—The forms of cancer commencing in the skin are squamous epithelioma, melanotic carcinoma, rodent ulcer, and Paget's disease. Cancer, secondary to malignant disease of the breast, often implicates the skin, either as a nodular or as a diffuse infiltration; the former is termed lenticular, the latter "*cuirass-scirrhus*."

**Cancer "*en cuirasse*."**—Cancer *en cuirasse* may occur primarily in the skin, without previous mammary cancer. I have myself seen three cases, all in women. In one case it commenced in the skin over the breast, and in the other two at some distance from that part (Plate LI.). The first visible lesion is a thickening of the skin somewhat resembling sclerodermia. After a time nodules develop, and by causing pressure on the lymphatics give rise to bead-like chains over the breast. The blocking of the lymphatics causes oedema of the arm; this in one case was the first symptom observed. The disease spread rapidly, and death occurred within four months in all the cases by forming a sort of breast-plate, which compressed the ribs and caused a very painful form of death by gradually increased oppression of the breathing. The treatment for this condition is the careful use of X-rays and various other measures for the relief of pain.

**Melanotic cancer.**—According to Unna, Gilchrist, Whitfield and others, nearly all the cases of sarcoma derived from pigmented moles described as melanotic sarcoma of the skin have been instances of melanotic carcinoma. Cases of undoubted melanotic cancer occur-

ring elsewhere have been marked by the development of dark areas rapidly changing to tumours along the course of the lymphatics, with early implication of glands.<sup>1</sup>

**Epithelioma** (Plate LII.).—All cancerous tumours are chiefly characterised by overgrowth of a certain extent of epithelium at the expense of the surrounding tissues. Thus on the skin cancerous growths usually begin as slight papillary elevations, but if the process begins in a gland a nodule forms the starting-point. To take the more usual case, the papule becomes firmer and extends laterally, involving the skin immediately around it, the infiltration being evidenced by the characteristic firm raised border. Extension in depth is also effected by continual growth of the deeper layers of the rete mucosum. The rapid growth of the epidermis at the sides and the base of the growth causes the central and superficial part to perish for want of nutrition, so that ulceration occurs in the middle while extension is going on in the depths and at the sides of the growth. If this is of moderate degree the surface remains covered by a certain thickness of epithelium, and there is no bleeding from denudation of vessels—in fact, no true ulceration, although there is a moist discharge which dries and forms crusts. If the necrotic process extends to the vascular tissues, there is more or less hæmorrhage. When the lateral growth predominates the so-called discoid epithelioma is the result. This is typically seen in sweep's cancer of the scrotum; the surface is raised, with a steep border, and bright red, with firm granular surface. If there is luxuriant formation of new tissue at the margin and deep ulceration in the centre, the crateriform ulcer of Hutchinson is the result. If the granulations are of large size the cancer is said to be of the papillary form. This phase may be so marked as

<sup>1</sup> On pigmentation preceding malignant growth, see Galloway, *Brit. Med. Journ.*, Oct. 2, 1897.





PLATE LII.—MICROSCOPIC SECTION OF EPITHELIOMA.



to deserve the name "cauliflower growth," such as is met with on the external genitals and the os uteri. Frequently the appearance of the lesions is modified by some pre-existent morbid condition. Thus epithelioma may arise in a chronic ulcer, simple or syphilitic, or from lupus; in a wart or mole, etc.

All forms of epithelioma have the following common characters: peripheral extension, infiltration and destruction of neighbouring parts, central ulceration, and in all cases (with the exception of rodent ulcer) a tendency to form secondary growths in lymphatic glands, in the viscera, and elsewhere. Just as a cancer of the tongue which has its starting-point at the bottom of a deep fissure may widely infiltrate the organ before there is any appreciable induration or ulceration of the surface, so an epithelioma of the skin beginning in the deepest part of the glands may widely infiltrate the corium and subcutaneous tissues before the surface is ulcerated. These deep-seated epitheliomata are the more dangerous by reason of their anatomical connections. The amount of pain caused by cutaneous cancer varies according to the structure involved. Cancer of the skin has a predilection for certain sites, such as the natural orifices—mouth, anus, vulva, and eyelids; moist parts, as the glans penis; exposed regions, as the face and hands; parts exposed to slight injuries, such as the feet from friction of the boots—but it may occur in any part. As already said, a wart, a mole, or an ulcer may be the starting-point. Epithelioma occasionally appears as a complication of long-standing lupus vulgaris lesions, and cases have been recorded in which it has developed on a cicatrix caused by the X-rays applied to lupus lesions. Sequeira believes that there is considerable risk of the development of what he calls lupus carcinoma when frequent

<sup>1</sup> *Brit. Journ. Derm.*, Feb., 1908, p. 40.

exposures to the rays are carried out over long periods. An ulcerated and everted sebaceous cyst simulates in appearance a malignant growth, and also tends to terminate in veritable epithelioma. The malignant infiltration varies in rapidity in different cases, but, as with cancer generally, it may be said that unless speedily and thoroughly removed, sooner or later the disease causes the death of the patient by generalisation of the disease and exhaustion.

Cancers vary in structure according to the particular epithelium in which they arise. On the skin they are usually of the stratified squamous type, with well-marked cell-nests in the central parts of the older lobules. These nests are due to the older cornified cells becoming flattened and arranged in concentric layers as the result of pressure. When the process starts in a tubular gland the glandular tubular type of epithelioma is the result. Not only is there overgrowth of epithelium, but the connective tissue is altered by inflammatory exudation and by formation of new vessels.

L. C. Pfeiffer<sup>1</sup> and other observers have described parasitic sporozoa in cutaneous as in other epitheliomata. Malassez and some others believe that there may be a causal relationship between these parasites and the growth. The question is still unsettled.

Early and free removal with the knife is the safest **treatment** of cancer of the skin. When this is impossible the sharp spoon, followed by the actual cautery or chloride of zinc, gives some hope of a cure. For inoperable cancer C. W. Allen<sup>2</sup> recommends arsenious acid, equal parts by weight of acid. arsenios. and orthoform, or one part of white arsenic to two or three parts of orthoform, mixed with enough water to form a butter-like paste. Orthoform is said largely to mitigate the pain of epi-

<sup>1</sup> *Zeitschr. f. Hygiene*, 1888.

<sup>2</sup> *New York Med. Journ.*, Nov. 9, 1901.

thelioma. Van Harlingen<sup>1</sup> treated fifty-five cases of epithelioma—almost all of them facial—with caustic potash, and found that in the majority the results were satisfactory. The cases suitable, in his opinion, for this form of treatment are such as display small, well-defined pearly lesions. Larger lesions, he holds, are best treated by the X-rays, but here caustic potash may be used to dissolve the horny epithelium. Ravogli and Stelwagon also speak well of caustic potash in epithelioma, and Hartzell reports that some of his best results have been obtained by the use of this substance in conjunction with pyrogallol.<sup>2</sup>

Bie has published a report of sixteen cases in which epithelioma of the skin was treated by concentrated light. In seven the result is described as a cure, which had been maintained respectively for two and a half years, eleven months (two cases), nine and a half months, and six months (three cases). Finsen concluded from the cases treated by this method that the cases of epithelioma which can be dealt with successfully by means of light are superficial well-defined forms in accessible situations. On the whole, the results both of Finsen light and of X-ray treatment of cancer have been disappointing.

**Cylindroma** of the skin is a very rare but well-marked variety of cutaneous epithelioma. The growth, according to Nicolau,<sup>3</sup> is composed of cylinders of cells (hence the name, which originated with Billroth), most of them anastomosing to form trabeculæ. Its most characteristic feature is the mucoid degeneration of the connective tissue imprisoned in the network formed by the cylindrical growths.

<sup>1</sup> *Trans. Amer. Derm. Assoc.*, 1905, p. 57.

<sup>2</sup> *Ibid.*, p. 63.

<sup>3</sup> *Arch. de Méd. Expér. et Anat. Pathol.*, Nov., 1903 (abstr. *Brit. Journ. Derm.*, June, 1904).

**Rodent ulcer** (Plates LIII., LIV., LV., LVI.).—The individuality of rodent ulcer is well explained in the words of A. Jacob,<sup>1</sup> by whom its claim to be considered a distinct clinical entity was first established: "The characteristic features of this disease are the extraordinary slowness of its progress, the peculiar condition of the edges and surface of the ulcer, the comparatively inconsiderable suffering produced by it, its incurable nature, unless by extirpation, and its not contaminating the neighbouring lymphatic glands." The affection is a form of epithelioma. The initial lesion is a small circumscribed nodule in the skin, flat and depressed in the centre, with unbroken cuticle, firm to the touch, and of a dull brownish-red colour. It often remains for some years without undergoing any perceptible change, but at length the cuticle covering it is broken, and an ulcer with depressed granular centre and infiltrated border is formed (Plate LIV.). The ulcer becomes slowly larger and deeper; it infiltrates and destroys the subjacent tissues, attacking and replacing bones as well as soft tissues (Plate LV.). Sometimes it spreads superficially, with cicatrisation of the centres, but usually the destruction of the parts beneath it is more marked in the centre, so that a crater-like form results. It is remarkable that almost every case of rodent ulcer has its seat within an area bounded by a line drawn from the uppermost part of the pinna to the root of the nose, and another drawn from the lobule of the ear to the columella of the nose. Cases are, however, recorded in which it has been met with in other parts—*e.g.* on the back of the hand. In 1888 Colcott Fox showed a case of multiple rodent ulcers (three)—that of a man who died ten years later after great extension of the disease.

The structure is that of an epithelioma, the cells

<sup>1</sup> *Dublin Hospital Reports*, 1827, p. 232.

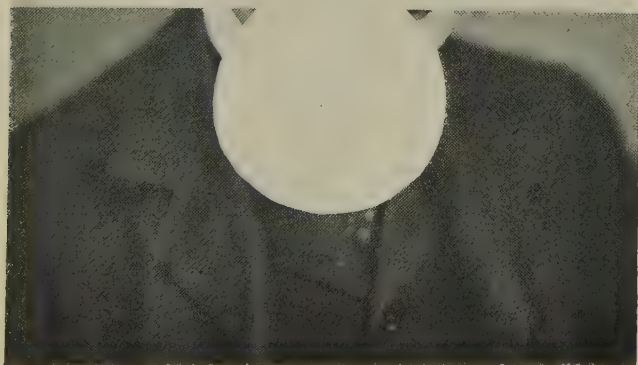
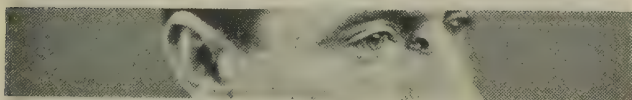
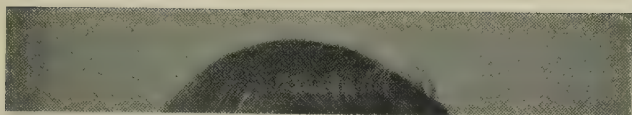


PLATE LIII.—EARLY RODENT ULCER.







PLATE LIV.—RODENT ULCER (MORE ADVANCED STAGE)



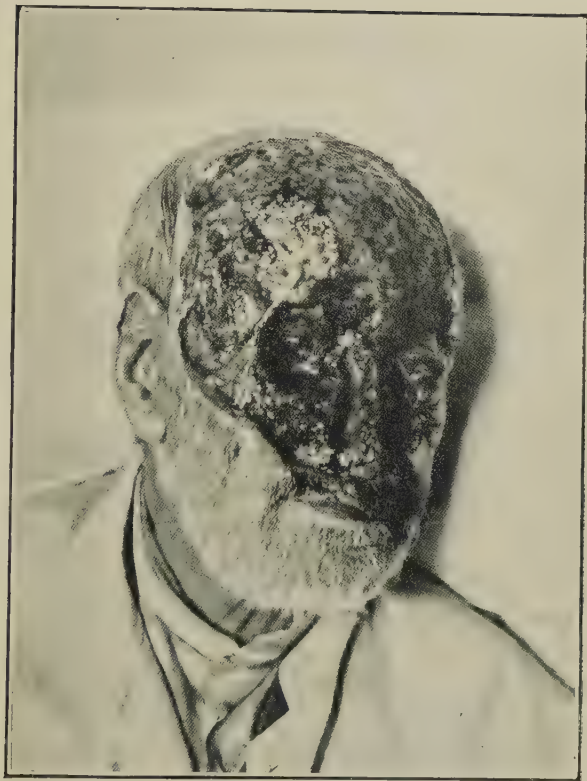


PLATE LV.—RODENT ULCER (LATE STAGE).



being smaller than those of the ordinary epithelioma, and only exceptionally being arranged in cell nests (Plate LVI.). Most histologists are agreed that it begins in the deepest layers of the rete mucosum, but others have traced it variously to the sweat glands, the sebaceous glands, and the hair follicles. In a case studied by Carle<sup>1</sup> it started in the arrector muscles of the hairs. Norman Walker<sup>2</sup> maintains that there is no connection between rodent ulcer and squamous epithelioma, except the fact that both are largely composed of epithelial cells. He argues that its type and the arrangement of its cells correspond to that described as glandular or tubular carcinoma. Its origin must therefore be looked for in glands, and as a matter of fact he has generally found that it arose from the sweat glands. In one case he was doubtful whether it did not originate in the sebaceous glands.

The **etiology** of rodent ulcer, like that of cancer in general, is not yet definitively settled. Dubreuilh and Wickham have described psorosperms in association with the process. Like cancer in general, rodent ulcer is a disease of old age, but it is not rare about thirty, and its occurrence has been recorded in patients under twenty. Norman Walker's statistics<sup>3</sup> give the average age for the commencement of the disease as forty. The affection occurs with about equal frequency in the two sexes.

**Diagnosis.**—Rodent ulcer is distinguished from other cancers by the limited amount of new growth, by the slowness of its progress, and by the absence of glandular infection. From lupus vulgaris it is differentiated by the absence of apple-jelly nodules, by the age of the patient, and by the mode in which it begins. From

<sup>1</sup> *Ann. de Derm. et de Syph.*, July, 1901, p. 593.

<sup>2</sup> *Brit. Journ. Derm.*, Sept., 1893.

<sup>3</sup> *Loc. cit.*

tertiary syphilitic ulcers it is distinguished by the granular base, the usually solitary character of the ulcer, and the resistance to treatment. The practitioner must, however, be on his guard against being misled by the temporary improvement sometimes observed.

If the growth be not freely removed or destroyed it will continue to progress till it ends in death. Hideous deformity may be produced by the extension of the ulcer; and if sensitive parts, such as the eyeball, are affected, the pain may be so great as to render life almost unendurable. The **treatment** is free excision wherever this is practicable. In parts where this is impossible, such as between the nose and eye, radium is the best remedy. It should be applied with proper precautions. The actual cautery followed by caustics may sometimes effect a cure. Even where the disease has been allowed to progress so far that neither of these measures is applicable, the advance of the disease may be retarded by the application of strong antiseptic dressings. Carle<sup>1</sup> recommends, after curetting, an application of arsenious acid — *Acid. arsenios.*, 1 part, *alcohol and water* equal parts to a dilution of 1 in 150. Finsen's light treatment has been successful in several cases in my hands, but in my experience it is inferior to the X-rays. In deep ulcerative cases with invasion of bone or periosteum or mucous membrane, in which, though there was healing of the ulceration under the X-rays, small burrowing foci remained and continued to spread, I have found radium useful on account of its greater penetrating effect.<sup>2</sup> A case of Dr. Whitfield's, which ceased to respond to the X-rays, showed great improvement under the introduction of zinc ions, as recommended by Dr. Lewis Jones, and at the time

<sup>1</sup> *Loc. cit.*

<sup>2</sup> Malcolm Morris and Dore, "Light and X-ray Treatment of Skin Disease." "



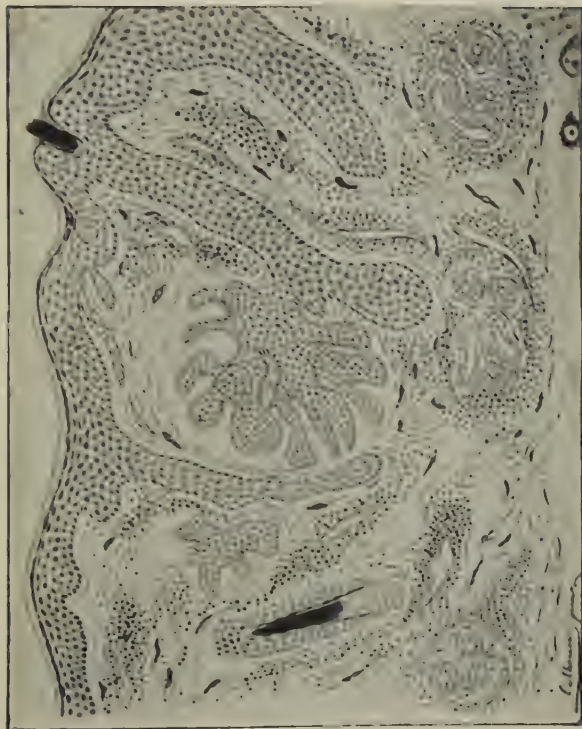


PLATE LVI.—MICROSCOPIC SECTION OF RODENT ULCER.



the case was shown the outlook appeared to be very favourable.<sup>1</sup>

**Sarcoma of the skin.**—The skin, according to Babes, is the most frequent source of sarcoma; but, as Kaposi points out, in the majority of cases the process in the skin is secondary to growths commencing in the lymphatic glands or the deeper structures. A tumour which arises in previously healthy skin, or in a mole or wart, or at the site of an injury, which is soft and reddish from its vascularity (a marked feature of sarcoma), or bluish from its pigment, and which after a possible period of slow growth rapidly enlarges, projects above the surface, and readily ulcerates and bleeds, is probably a sarcoma. The clinical forms of sarcoma of the skin are so various that it is impossible to describe them all. The following is only a general outline of the disease in its commoner varieties.<sup>2</sup> Sarcomata vary greatly in consistence, the spindle-celled tumours being fairly firm, the small-celled ones soft, with all intervening grades of density. The description would apply also to mycosis fungoides in its later stages, for that affection may be regarded as a form of sarcoma (Kaposi). When a sarcoma arises in a congenital papilloma its surface is frequently warty, and the tumour is then usually melanotic. In colour sarcomatous tumours vary greatly: the pigmented varieties are bluish-black or brown; the non-pigmented, reddish in hue. Sarcoma may arise in any part of the body; but moles, warts, and pre-existing ulcers all predispose to sarcoma. Hutchinson has drawn attention to a melanotic sarcoma which begins at the side of the nail, and for a time shows nothing more than a blue

<sup>1</sup> *Brit. Journ. Derm.*, Dec., 1907, p. 430.

<sup>2</sup> For fuller information on the subject the reader is referred to papers by Funk of Warsaw in the *Brit. Journ. Derm.*, vol. i., 1888-89, pp. 143 and 182.

mark, which afterwards becomes a tumour of extremely malignant character. Very frequently cutaneous sarcomata are exceedingly numerous, and may form rapidly

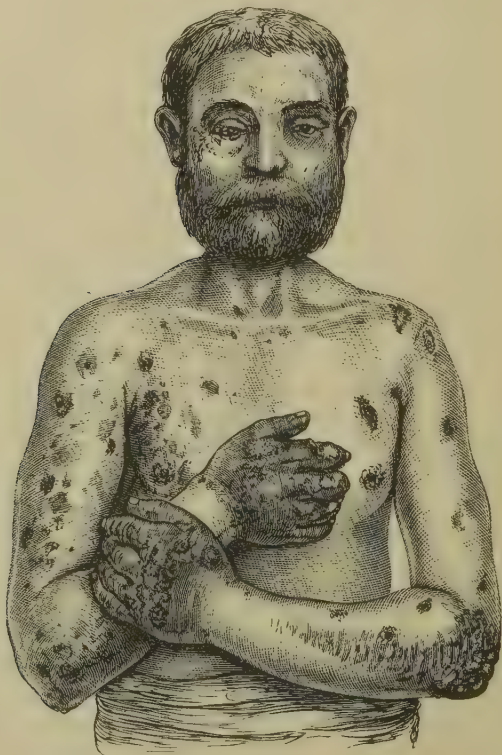


Fig. 18.—Multiple Sarcoma of the Skin.

After Schwimmer, "*International Atlas of Rare Skin Diseases*,"  
Plate IV.

over the whole body (Fig. 18). *Multiple pigmented sarcomata* of the skin are of rare occurrence. According to Kaposi, they begin on the hands and feet, and gradually extend to the head and trunk, which they

reach in two or three years. They are brown in colour, owing to hæmorrhage taking place in them, and form groups of rounded tumours, some of which may disappear, leaving pigmented scars. The prognosis is not necessarily unfavourable, but some cases prove fatal from the formation of secondary growths in the viscera. They owe their peculiarities to the rapidity of their formation, which leads to hæmorrhage and determines the rapid clinical course. Lesions from a case shown by Dr. Parkes Weber to the Dermatological Society of London were subjected to histological examination by MacLeod, who found that while the case presented the typical clinical characteristics first described by Kaposi, the growth was not a sarcoma, but consisted of organising connective-tissue cells associated with marked vascular dilatation, œdema, and the deposition of blood pigment.<sup>1</sup> In one of several cases observed by Bernhardt,<sup>2</sup> an attack of erysipelas, instead of inhibiting, appeared to stimulate the sarcoma. Bernhardt concludes that the growth is a spindle-celled angio-sarcoma.

Sarcoma may be taken as a type of malignant growth. Its chief characters are unlimited local extension, with infiltration and destruction of neighbouring tissues and (when situated on skin and mucous membranes) rapid ulceration. Secondary deposits in sarcoma are usually due to the growth invading and projecting into veins, in which detached particles are carried to the heart, lungs, etc. Extension along lymphatics is also met with, and the glands may be enlarged throughout the body. Subsidence and scarring are very rare. Congenital sarcoma, sarcoma appearing early in life, and sarcomatous tumours of the melanotic variety, are usually highly malignant. To a group of cases in which

<sup>1</sup> *Brit. Journ. Derm.*, April and May, 1905.

<sup>2</sup> *Arch. f. Derm. u. Syph.*, Oct., 1902, p. 237.

the tumour is not malignant Boeck has applied the name of *multiple benign sarcoid*. The lesions, however, have no genuine relationship with sarcoma, from which they differ in structure, prognosis, and course. In a case described by Pawloff<sup>1</sup> a virtual cure was effected by arsenic.

A round-celled sarcoma differs but little in structure from a mass of granulation tissue. The blood-vessels have thin walls, and active budding takes place from the cells which constitute their walls. All sarcomata are remarkably vascular, and the walls of their vessels being thin, hæmorrhages are frequent. The central parts of sarcomata tend to degenerate, like those of gummata and tuberculous masses. Melanotic sarcomata owe their special features to pigment granules being deposited in some of the sarcoma cells. When there is a formation of spindle-cells parallel to the long axis of the vessels of the tumour, while round cells collect in the spaces so formed, the "alveolar sarcoma" is constituted. In one variety (lipomatous) the cells become loaded with fat. Until Virchow established the differential characters of sarcomata as compared with epitheliomata these two groups were included together as cancers.

Sarcoma is commonest at and after middle age, but may occur in childhood. Ulcerated sebaceous cysts often present the appearance of malignant growths, and indeed, if long neglected, may form starting-points of such tumours. The prognosis of sarcoma is extremely bad, recurrence being the rule, however freely removal be carried out.

The only **treatment** is complete removal at the earliest possible moment, whenever this is practicable. The results of radiotherapy have been disappointing. Lassar, Köbner, and Shattuck have reported good

<sup>1</sup> *Monats. f. prakt. Derm.*, May 15, 1904, p. 469.

results from subcutaneous injections of *Fowler's solution*, diluted with two part of distilled water, beginning for an adult with  $\text{miv}$ , increased after a time to  $\text{mvi}$ . Pospelow<sup>1</sup> has given *arsenic* internally in the form of Asiatic pills (*see* p. 58) with good results. I have also used this method with success. In multiple benign sarcoid, also, Boeck found that great improvement resulted from the administration of arsenic.

**Mycosis fungoides** (Figs. 19 and 20).—To this now well-recognised disease various names have been given, but the one used here was applied to it by Alibert, as indicative of the naked-eye appearance, and not as a pathological description.<sup>2</sup> The lesions in the early stage are dull red or livid patches, varying in size from that of the finger-nail to that of the palm of the hand, with borders sometimes well marked, sometimes fading off, occasionally flat, but more often raised or thickened. The patches are smooth and dry at first; later they become scaly, and at last they may be moist or covered with crusts. From the appearance of the lesions, Erasmus Wilson termed the affection "*eczema tuberculatum*," and to this first stage of the disease French dermatologists have given the name *eczéma prémycosiforme*. Nevins Hyde and F. H. Montgomery, who have made a special study of this stage,<sup>3</sup> consider that it is just as much a manifestation of the disease as that of tumour formation, and that the poison is in operation as soon as the early pruriginous symptoms are mani-

<sup>1</sup> *Arch. f. Derm. u. Syph.*, Bd. xxxiv., Hft. 2.

<sup>2</sup> For a history of our knowledge of this disease, which begins in 1833, when Alibert first described it, *see* Pélissier, "*Mycosis Fongoïde ou Lymphadénie Cutanée*." Thèse de Montpellier, 1889.

<sup>3</sup> *Journ. Cut. and Gen.-Urin. Dis.*, June, 1899. *See* also a case reported by Allan Jamieson and Miss Huie, *Brit. Journ. Derm.*, April, 1904, p. 126.



fested. They sum up as follows: "The facts point to a systemic origin for mycosis fungoides as definitely and as unmistakably as a glycosuric xanthoma points to a condition which by no possibility could have been explained by any examination merely of its cutaneous



Fig. 19.—Mycosis Fungoides of the Face.

(From a Replica of Model No. 1665, in the Hôpital St. Louis, Paris.)

lesions." Dubreuilh<sup>1</sup> has reported a case in which there was no premycosic stage, the tumours being the first manifestations of the disease. In the premycosic stage the disease is often mistaken for eczema, urticaria, or erythema. These early phenomena may be slight or absent. In a later stage the most eczematous sur-

<sup>1</sup> *Journ. des Mal. Cut. et de Syph.*, October, 1899.

face becomes more and more infiltrated, so that tumours project above the level of the skin. They may be as small as a pea, or as large as an apple (A. Neisser). They are firm and lobulated, broader at the free end than at their attachment (somewhat resembling toma-

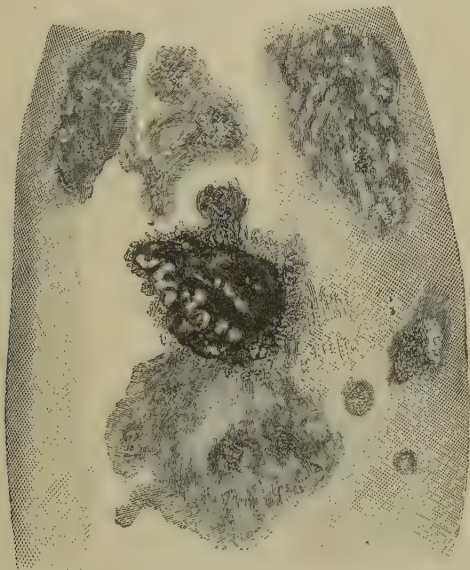


Fig. 20.—Mycosis Fungoides. Forearm of same case as Fig. 19.

*(From a Replica of the Model by Baretta in the Hôpital St. Louis, Paris.)*

toes, whence the term “fungoides”). Their surface may be smooth and moist, or else excoriated and covered with crusts.

The lesions are not arranged according to any plan. Any part of the body may be affected. They have been observed on the mucous membranes of the mouth, the uvula, and the soft palate. The eczematoid stage may

last for many months or even years before tumour formation begins. This is not always regularly progressive, for many of the patches may disappear whilst new ones are forming around them. As a rule, however, progressive thickening occurs, a papillated condition (lichenoid plaques) often being observed before fungation. Fresh tumours may develop on the site of previous tumours that have disappeared. On the whole, the disease steadily progresses and wears out the patient, who becomes emaciated and dies of pneumonia, diarrhoea, or some other complication. In one case, however (Bazin), recovery is recorded to have taken place after an attack of erysipelas. Sometimes the first or eczematoïd stage of the disease is wanting, and the tumour formation is the first evidence of the malady. The duration of the disease is usually from six months to as many years, or even longer. In the early stage the symptoms are intense itching, and sometimes burning pain, causing loss of sleep and impairment of health. As a rule, however, the general health remains fairly good until many tumours have formed. The growths are devoid of sensibility. The lymphatic glands may be enlarged throughout the body, as in lymphadenoma. In the early stage the affection may be indistinguishable from some forms of eczema and other eruptions. In obstinate eczematous conditions the possibility of the case being one of mycosis fungoides should be borne in mind. The tumours are composed of small round cells, supported by scanty fibrous tissue, thus resembling lymphadenoma. Indeed, some authors regard the affection as a lymphadenoma of the skin; others look upon the new growth as granulation tissue formed by an infection of micrococci. Like that of lymphadenoma, the direct cause of the affection is unknown. The extremes of age are twenty to sixty years, but it is commonest between forty and fifty.

Males are more frequently attacked than females: of twenty-eight cases collected by Stowers,<sup>1</sup> twenty-two were males and six females, and the age limits were twenty-five on the one side and seventy-two on the other. The general aspect of the affection, like sarcoma and cancer, suggests a parasitic origin, but this as yet has not been proved. Payne<sup>2</sup> showed that the micrococci described by various authors are probably accidental. Posada,<sup>3</sup> working under Wernicke, has described coccidia in the lesions.<sup>4</sup> In a case of Riecke's the growth followed an injury to the back of the head from a fall, the consequent swelling becoming livid red and gradually spreading. The time has been as short as nine weeks and as long as thirty years, as in a case recorded by Dubreuilh.<sup>5</sup>

The only **treatment** that has any influence on the process is radiotherapy. Allan Jamieson has reported cases in which the lesions completely disappeared under the X-rays, and favourable results have also been reported by E. Stainer, Radcliffe Crocker and Pernet, and others. Drs. White and Burns, of Harvard,<sup>6</sup> report with much chagrin a case in which the patient, under moderate doses of X-rays, "succumbed to the effects of a too rapid relief from his malignant disease," being, in fact, poisoned by the products set free by the rays. Apart from radiotherapy, all that can be done is to relieve symptoms,

<sup>1</sup> *Brit. Journ. Derm.*, Feb., 1903, p. 47.

<sup>2</sup> *Path. Soc. Trans.*, vol. xxxvii. (1886), p. 22.

<sup>3</sup> Wernicke, *Centralb. f. Bakt.*, Dec. 28, 1892.

<sup>4</sup> For an exhaustive study of the histology and bacteriology of mycosis fungoides, see a paper by J. Galloway and J. M. H. MacLeod, *Brit. Journ. Derm.*, May and June, 1900. The results of the bacteriological examination were negative.

<sup>5</sup> *Ann. de la Policlinique de Bordeaux*, March, 1893.

<sup>6</sup> *Trans. Amer. Derm. Assoc.*, 1905, p. 76.

and maintain the health as far as possible by general tonic measures. In a case under my care the use of *resorcin ointment* (gr. xx to 3j) was followed by considerable local improvement.

**Kaposi's disease**, or *xeroderma pigmentosum*, otherwise *melanosis lenticularis progressiva* (Pick), is an extremely rare affection, which was first described by Kaposi. In England the first cases described were those of Crocker,<sup>1</sup> to whom I am indebted for permission to reproduce an illustration of one of them (Fig. 21), which gives a good idea of the appearance of the disease. It is characterised by the formation of numerous tumours, which, though apparently benign in the early stage of their development, run a malignant course, and, after extensive destruction of tissues, cause the death of the patient by exhaustion. The initial lesions are small pigmented spots, resembling freckles, but rather darker, which appear chiefly on the face, neck, arms, and legs, the area of distribution corresponding pretty exactly with the parts of the skin often left uncovered in infancy. Erythematous patches or papules, like those of the measles eruption, sometimes precede the "freckles." The latter usually come and go for a time, disappearing in the winter, to return in the summer; after a time they become permanent, and the colour tends to deepen till they are often quite black. They are irregular in outline, vary in size from a pin's head to a pea, and are generally thickly crowded together, especially on the face. For some time the condition suggests nothing more than excessive freckling, but by-and-bye further lesions appear among the "freckles" in the form of white glazed atrophic spots, which often run together, forming scar-like areas; telangiectases, stellate and striate; and superficial ulcers discharging pus which is auto-inoculable, and which dries into yellow crusts under

<sup>1</sup> *Med. Chir. Trans.*, 1884.

which healing takes place, followed by a good deal of cicatricial contraction. Lastly, after some years, small warty-looking growths develop on the "freckles." This event marks the entrance of the disease on a more



Fig. 21.—Kaposi's Disease, or Xeroderma Pigmentosum.

(From a case under the care of Dr. Crocker, reported in the *Med. Chir. Transactions*, 1884.)

formidable phase of its evolution. Tumours form and ulcerate, producing fungous masses, the process extending both widely and deeply, and destroying every tissue that comes in its way. In a case recorded by M'Call Anderson<sup>1</sup> the whole of the face and part of

<sup>1</sup> *Brit. Journ. Derm.*, Dec, 1892. The paper is illustrated.



the neck were eaten away, the ulcerating process, starting from three foci (nose, lip, and cheek), having resulted in the excavation of a huge pit, the greatest depth of which in the face was about  $1\frac{1}{2}$  inches, in the neck about  $\frac{3}{4}$  inch. "The destruction involved the external auditory canal and the lower portion of the temporal bone, the zygoma, which had entirely disappeared, the posterior half of the lower jaw, including the condyles, the palatal and the superior maxillary bones. In the upper part of the floor of the ulcer, behind the right orbital plate, there was an opening admitting the point of the finger, into which the probe passed easily 1 inch upwards and 3 inches in a backward direction. . . . On the removal of the brain the anterior part of the under surface of the temporo-sphenoidal lobe was found to communicate with the floor of the ulcer through the above aperture. Almost the entire floor of the middle fossa was ulcerated away. . . . The gap in the middle fossa measured 2 inches by  $1\frac{1}{2}$  inches. There was also a large gap in the lower part of the frontal bone measuring  $1\frac{1}{2}$  inches by 1 inch. The anterior part of the ethmoid and of the nasal bones was destroyed. . . . There was no lesion in any of the other organs." The fact last mentioned agrees with what is recorded in the majority of other cases, generalisation of the disease rarely if ever occurring. This accounts for the relatively slight effect which it has on the health until near the end, when emaciation (from difficulty of taking food) and exhaustion supervene, and a slight hæmorrhage may close the scene.

Nothing is known as to the **etiology** of this terrible affection, beyond the fact that exposure to the sun may be an exciting influence,<sup>1</sup> but it is clear that some special

<sup>1</sup> In a case recorded by Elsenberg (*Arch. f. Derm. u. Syph.*, 1890, p. 49), exposure to the sun on a hot summer's day at the age of six months was immediately followed by an eruption of small



predisposition must exist. The disease generally attacks two or more members of the same family, often selecting its victims exclusively from one or other sex. The sexes are equally liable. It generally begins within the first two years of life, but it has been known to commence in middle life. Several authors have drawn attention to the comparative frequency of the affection in Jews, among whom consanguineous marriages are not uncommon. According to Von Halle, writing in 1901, consanguinity was present in 10 per cent. of the cases, while Bayard in 1903 found that the percentage was 12.5. The parents, however, never suffer from the same affection. A diminution of the hæmoglobin and red corpuscles, an increase of leucocytes, the presence of poikilocytes, etc., have been noted, but specific blood changes have not yet been proved.<sup>1</sup>

The **pathology** of the disease is very obscure. Kaposi believes that the change commences in the papillary body and epidermis, extending thence to the true skin. The primary pigmentation is due to atrophy. The tumours are epitheliomatous in structure, a fact which suggests that the process is analogous to the cancerous degeneration that not unfrequently takes place in pigmented moles in elderly persons.

When the disease is fully established it tends steadily to a fatal issue. The commencement of tumour formation, which may be called the patient's death-warrant, has, however, been known to be delayed for many years, but this is altogether exceptional.

erythematous patches on the face, neck, and hands. These soon became transformed into "freckles," and the disease afterwards followed the line of evolution indicated in the text. In the case of an old woman described by Nicolas and Favre (*ibid.*, June, 1906) the parts exposed to sunlight were those upon which the lesions appeared.

<sup>1</sup> See abstract by Dr. Dore (*Brit. Journ. Derm.*, Sept., 1904) of paper by C. Adrian, *Derm. Centrallb.*, Feb., 1904, p. 130.

The **treatment** can only be palliative. Auto-inoculation of pus from the early ulcers should as far as possible be prevented, and the tumours should be excised as soon as they are noticed. The early and thorough application of this method offers the only chance of checking the disease.

The work of Bowles and others on the action of light, especially reflected light, on the skin suggests that possibly something might be done in the early stages of the disease by the application of reddish and brown pigments (salve sticks), and exclusion of the sun's rays.

## CHAPTER XXV

### MALFORMATIONS

THERE remain to be considered certain conditions which, though clearly not belonging to any of the categories in which the diseases already described have been provisionally grouped, it is difficult to classify on the basis of any distinctive feature common to them all. Inasmuch as, though they are not always strictly speaking congenital, they depend on an error of development of some kind, I have ventured to bring them together under the head of "malformations." This term must not, however, be understood as implying a definition; it is used merely as a designation, neutral and temporary in character, for conditions which await the dawn of a fuller knowledge of their pathogenesis before they can be finally classified. These conditions include ichthyosis, with its degrees and varieties, tylosis, sclerema neonatorum, œdema neonatorum, and albinism.

**Ichthyosis**, also called **congenital dyskeratosis**, is an affection characterised by dryness of the skin, which becomes scaly (hence the name, from  $\iota\chi\theta\acute{\upsilon}\varsigma$ , a fish) and rough, and often warty. There are many varieties of the affection, and Lenglet<sup>1</sup> recognises seven chief groups, related to one another by transitional forms: (1) the lamellar desquamation of the new-born of Grass and Török, (2) foetal ichthyosis properly so-called, (3) the congenital ichthyosiform erythrodermia of Brocq (p. 199), (4) keratodermia of palms and

<sup>1</sup> *Ann. de Derm. et de Syph.*, vol. iv., May, 1903.

soles, (5) atrophic lesions circumscribed and generalised, (6) types of bullous lesions complicated by one of the preceding morbid types, and (7) ordinary ichthyosis. But ichthyosis may be said to occur in three principal forms, distinguished as *xerodermia*, *ichthyosis simplex*, and *ichthyosis hystrix*. The two former, though clinically distinct, are pathologically identical, being the results of a process which manifests itself in varying degrees of intensity, of which they may be taken as the extremes. The third, though belonging to the same nosological genus, is a distinct species. All three are, as a rule, congenital, though the condition is seldom noticed till some little time after birth; in exceptional cases it is acquired.

**Keratosis pilaris** or **xerodermia**, which is the commonest form of ichthyosis, is often nothing more than a dry scaly condition of the skin; little or no sweat is secreted, and the hair follicles, especially on the extensor aspects, project on the surface of the skin, giving to the hand, when passed over it, the feeling of a nutmeg grater (hence the name *keratosis pilaris*). In the more marked cases the epidermis is distinctly thickened, and the natural lines are better defined than in normal skin. Chalmers Watson<sup>1</sup> describes the case of a boy of six in which the keratosis pilaris was associated with absence of hair from the skin, early senile baldness, an abnormally slow pulse and constipation with foetid stools. Histological examination disclosed a sclerosis or thickening of the corium with cellular infiltration in its papillary layer, marked thickening of the blood-vessels with cellular infiltration around them, imperfect development of hair, and changes in the sebaceous and sweat glands, especially the former. The affection was virtually cured by the inunction of myelocene, with the administration first of castor oil, afterwards of

<sup>1</sup> *Brit. Journ. Derm.*, Jan., 1904, p. 1.

sulphate of magnesia, and an occasional enema of plain water. Chalmers Watson regards the condition as a chronic irritation and defective nutrition of the skin, the changes in the derma being primary and the epidermic changes secondary, the irritant acting primarily on the cutaneous vessels, and being derived in all probability from the alimentary tract.<sup>1</sup>

**Ichthyosis simplex** is characterised by extreme scaliness of the skin, which sometimes appears to be covered with a dense horny cuirass, like the hide of a crocodile. The colour of the scales varies according to their age and position from white to dark green and black. The whole skin is affected, but in widely different degrees of severity, the extensor surfaces, especially the elbows and knees, nearly always suffering most; occasionally warty growths develop in these situations. On the other hand, the flexures and the palms and soles are comparatively little affected, and the face also is more or less spared. The hair participates in the general dryness, and becomes dull and brittle; the nails break easily. The sebaceous as well as the sweat secretion is deficient, though neither is entirely suppressed; and patients are usually better in summer, when the glands act more freely.

The most marked subjective symptom is an exaggerated sensitiveness to cold, but there is also a good deal of itching. The skin "chaps" readily and deeply, and is particularly prone to become the seat of eczema, which adds greatly to the sufferings of the patient.

Acquired ichthyosis is seldom general, and has usually been seen in association with neuritis or some central nerve disease.

**Ichthyosis hystrix** (ὑστρίξ, a porcupine) is a rarer

<sup>1</sup> For the results of a histological examination of twenty-five cases by S. Giovanni, see *Arch. f. Derm. u. Syph.*, Dec., 1902.

affection than those just described. It is never universal, but is occasionally seen in association with xerodermia. Its distribution often appears to correspond to that of the cutaneous nerves, the lesions being arranged longitudinally on the limbs and transversely on the trunk. Unna, however, thinks that it follows the embryonic lines of fissure. The lesions are small papillary growths with horny tops, which stud the skin as with tiny nail-heads; these may develop into large warty masses or concretions like limpet shells, rising sometimes to a height of half an inch or more above the level of the surrounding skin. An unusually well-marked case was exhibited by Dr. Stowers at a meeting of the Dermatological Society of Great Britain and Ireland on February 27th, 1907. The affection may be very widespread, and in situations where the warty projections are liable to injury may cause a good deal of inconvenience, but otherwise it gives rise to no symptoms. When localised in the track of a particular nerve it is sometimes described under the name of papilloma neuroticum.

All varieties of ichthyosis are, as a rule, congenital, though there is usually no very obvious abnormality in the skin till some little time after birth. In some cases, however, the skin is seen to be peculiarly smooth and glazed as soon as the vernix caseosa is removed; and in others a remarkable condition, styled by some writers *hyperkeratosis congenita*, has been observed in the skin of the foetus, which is covered with thick epidermic plates, separated by vertical and horizontal fissures into square patches, like the parti-coloured garment of Harlequin ("harlequin foetus").<sup>1</sup> Unna and most other writers regard *hyperkeratosis congenita* as a distinct affection from ichthyosis, but on both clinical and histological

<sup>1</sup> See a case recorded by Bland-Sutton (*Trans. Med.-Chir. Soc.*, vol. lxi., 1886), with coloured illustration and bibliography.

grounds F. Bering<sup>1</sup> leans to the view that no definite line of demarcation can be drawn between the two conditions. Of the cause of hyperkeratosis congenita as little is known as when Lebert first described it more than forty years ago. Both sexes are equally liable to ichthyosis. Beyond the fact that the condition clearly depends on an error in development, nothing is known as to its pathogenesis. The process appears to consist in increased formation of epithelial cells, which undergo rapid keratinisation. Tommasoli<sup>2</sup> has found lesions in the cutis as well as the epidermis, as indicated by the presence of round or fusiform cells, dilated vessels, and large numbers of oval or flattened nuclei. He is therefore inclined to regard ichthyosis as the expression of a catarrhal condition of the skin. Hutchinson thinks ichthyosis "an intensified form of psoriasis, beginning at a very early period, and deriving peculiarities accordingly." With that opinion I cannot, however, agree.

The disease can hardly be mistaken. There is little prospect of a cure being effected, but **treatment** can generally alleviate the condition. The indications are to remove the scales and keep the skin soft and flexible. This is best done by the free use of soft soap with warm baths, alkaline or bran, and vigorous friction. Inunction with *lanolin* or other fatty material should follow the cleansing process. The treatment must be regularly persevered with, otherwise any advantage gained will speedily be lost. The growths of the hystrix variety should be removed, if convenient. *Salicylic acid* will suffice for the smaller ones, but the large growths must be excised or scraped away.

### **Ichthyosis glossæ (Schwimmer) or leucokeratosis**

<sup>1</sup> *Arch. f. Derm. u. Syph.*, Sept., 1905, p. 379.

<sup>2</sup> *Giorn. Ital. del. Malattie Ven. e della Pelle*, Sept., 1889, and March, 1891.



(Butlin) is a condition of the buccal mucous membranes which closely resembles tylosis (*see below*). Rosenheim<sup>1</sup> describes two cases, in one of which a whitish patch on the mucous membrane of the cheek appeared to be consequent upon the habit of holding a quid of tobacco against the cheek when not chewing. In the other no determining cause was suggested. In neither case was there any admission of syphilis. Rosenheim maintains that the essential changes in leucokeratosis and in tylosis are much alike.

**Tylosis** is a condition, affecting the palms and soles, which consists in thickening of the epidermis into a horny plate, generally dry and smooth on the surface, sometimes worm-eaten. In the foot only the part that comes in contact with the ground in walking is affected. The condition is as a rule congenital, but may be the result of the long-continued administration of arsenic, or of either hyperidrosis or dysidrosis. When due to arsenic the affection begins with the formation of papules, which develop into nodules and by-and-by into a uniform callosity; when caused by hyperidrosis the thickening commences round the sweat follicles, and the affected epidermis is sodden as well as thickened. Both sexes are equally liable, and the condition is sometimes hereditary (Plate LVII.).

Horny thickening of the palms and soles may be a secondary condition, due to inflammatory processes, such as eczema, psoriasis, syphilis, etc. These forms of tylosis have been referred to in connection with the several diseases of which they are the result.

In congenital cases little good can, as a rule, be looked for from **treatment**, but the persevering use of *salicylic acid in ethereal solution* (10 per cent.) or in a plaster mull has been successful in Unna's hands. The acquired condition may be dealt with in the same way.

<sup>1</sup> *Bull. Johns Hopkins Hosp.*, Feb., 1904, p. 47.

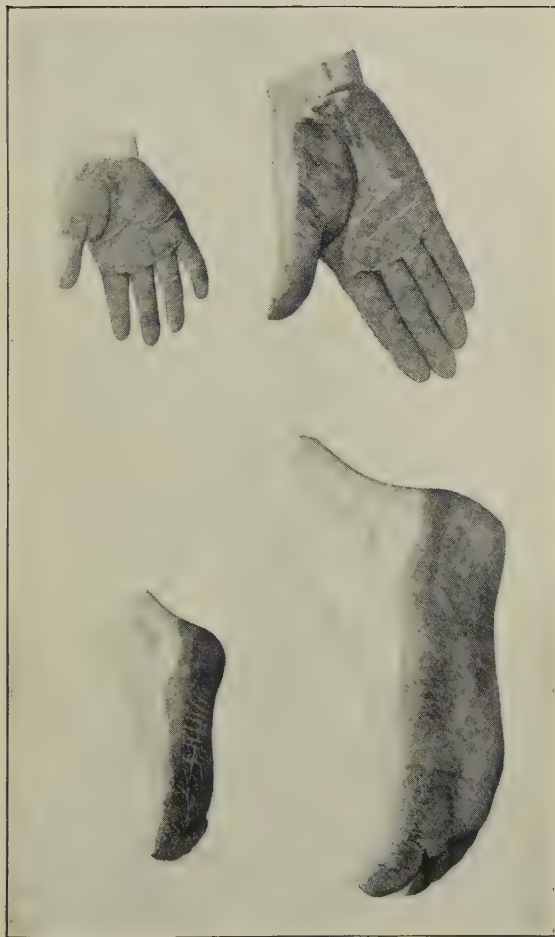


PLATE LVII.—TYLOSIS IN FATHER AND DAUGHTER.



*Ichthyol*, combined with salicylic acid in an ointment, has been found satisfactory by Brooke. Mayer recommends the rubbing in of *rheumasan*, a salve-soap containing 10 per cent. of free salicylic acid, the drug to be discontinued for a few days on the first appearance of redness.

**Sclerema neonatorum** is a peculiar induration of the skin which is generally congenital, but occasionally becomes developed within a few days after birth. The skin becomes waxy in appearance, hard, tense, and cold, the baby lying motionless as if its face and limbs were fixed in death. The body can be lifted with one hand as if it were frozen. The temperature is subnormal, the breathing very slow and feeble. The child cannot open its mouth to suck, so that what little flicker of life there may be is speedily extinguished. The condition may be acquired consecutively to acute wasting illness (diarrhoea, pneumonia, etc.), or may be the result of malnutrition. According to Parrot, the anatomical changes are desiccation of the skin, with thickening of the layers and diminution of the fat, but no true sclerosis.

A somewhat similar condition is **œdema neonatorum**, which is almost unknown in England. It is said to commence on the third day after birth. The œdema begins in the lower limbs and spreads upwards. The skin has a doughy feel and pits with difficulty. The child is drowsy from the first, and quickly dies of collapse, diarrhoea, convulsions, or other complications. Constitutional feebleness, bad feeding, and exposure to cold are considered to be the causes of the condition.

The anatomical changes are yellow serous effusion in the connective tissue, with great density of the subcutaneous fat.

Both in sclerema and œdema the prognosis is bad, but less so in the latter than in the former condition. If sclerema is incomplete, recovery may take place.

The indications for **treatment** in both cases are to raise the temperature to the normal standard and to improve nutrition. The child should be wrapped in cotton-wool or kept in an incubator such as Tarnier's *couveuse* and fed artificially. The circulation should be stimulated by friction.

**Albinism** is congenital absence of pigment in the skin and other tissues, and may be general or partial. The skin for the most part is perfectly white, but where it is thin enough for the vessels to show through it is pinkish. Owing to the same cause the iris looks pink, and there being no screen of colouring matter in front of the retina, photophobia exists. Albinism is often, but by no means invariably, associated with delicacy of body and some mental inferiority. When the condition is partial, irregular patches of white skin are seen here and there, sometimes arranged in correspondence with the distribution of a particular set of nerves, but seldom symmetrical. The hairs on the unpigmented spots are white. Albinism is more common in coloured than in white races, and is generally hereditary. The condition is endemic in some tropical regions.

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